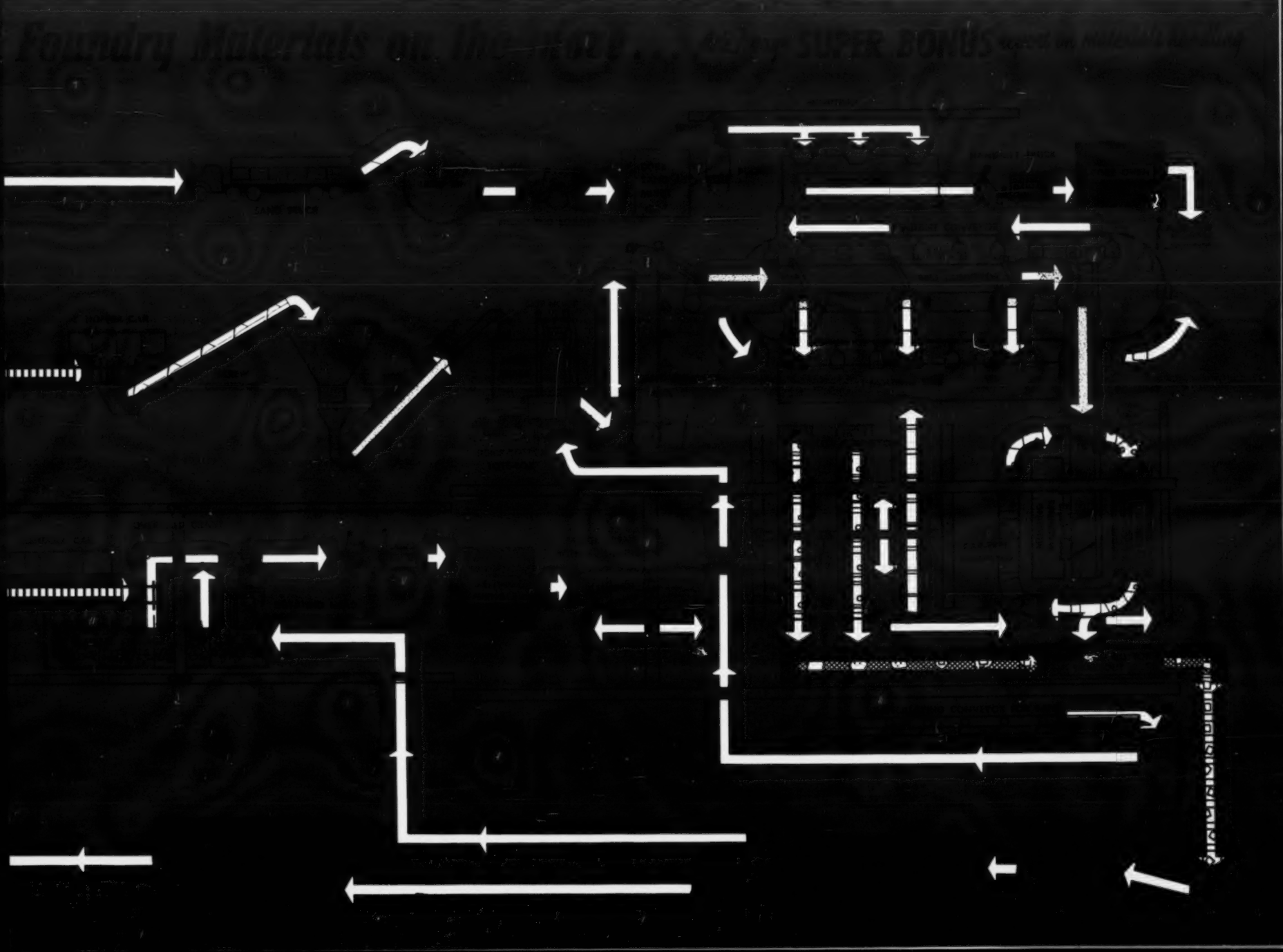
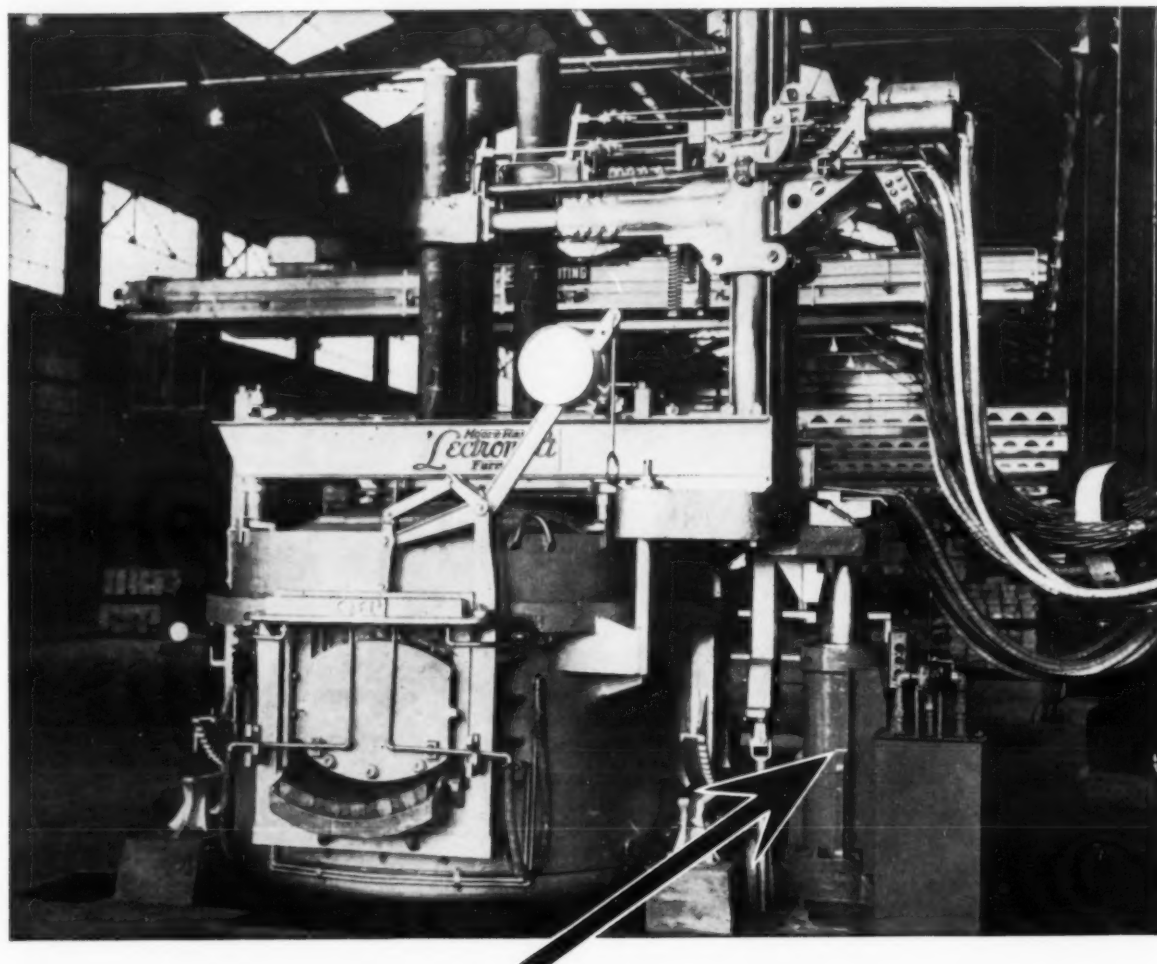


modern castings

NOVEMBER 1958





Separately mounted roof lift-and-swing mechanism on Lectromelt Furnaces . . .

Offers these advantages

★ No heavy parts attached to furnace shell to cause strain and distortion

★ No jarring of roof, electrode arms or ram parts when heavy charges are dropped into the furnace

★ Allows uniform heat radiation all around the shell

★ Roof lift mechanism is away from excess furnace heat

★ Roof can be lifted higher, permitting larger charges

★ Shells can be readily interchanged

★ ★ ★

All good reasons for specifying Lectromelt furnaces. They're described in Catalog No. 10, Lectromelt Furnace Division, McGraw-Edison Company, 316 32nd Street, Pittsburgh 30, Pennsylvania.

Lectromelt®



CANADA: Canefco Limited, Toronto... ARGENTINA: Master Argentina, Buenos Aires... ITALY: Forni Stein, Genova... ENGLAND: Electric Furnace Co., Ltd., Weybridge... GERMANY: Demag-Elektrometallurgie, GmbH, Duisburg... SPAIN: General Electrica Espanola, Bilbao... FRANCE: Stein et Roubaix, Paris... BELGIUM: S. A. Stein & Roubaix, Bressoux-Liege... JAPAN: Daido Steel Company, Ltd., Nagoya

Circle No. 226, Page 7-8

future meetings and exhibits

NOVEMBER

4 . . Metallurgical Associates, Inc., Sales Clinic. Hotel Sheraton, Pittsburgh, Pa.

10-12 . . Steel Founders' Society of America, 13th Technical & Operating Conference. Carter Hotel, Cleveland.

12-13 . . Investment Casting Institute, Annual Meeting. Roosevelt Hotel, New York.

17-19 . . National Association of Corrosion Engineers, Fall Meeting, Western Region. Statler Hotel, Los Angeles.

18-20 . . U. S. Department of Health, Education, and Welfare, National Conference on Air Pollution. Sheraton-Park Hotel, Washington, D. C.

20-21 . . National Foundry Association, Annual Meeting. Drake Hotel, Chicago.

30-Dec. 5 . . American Society of Mechanical Engineers, Annual Meeting. Statler Hilton and Sheraton-McAlpin Hotels, New York.

DECEMBER

3 . . Foundry Facings Manufacturers Association, Annual Meeting. Waldorf-Astoria Hotel, New York.

3-5 . . American Institute of Mining, Metallurgical & Petroleum Engineers, Electric Furnace Steel Conference. Statler Hotel, Detroit.

3-5 . . National Association of Manufacturers, Annual Meeting. Waldorf-Astoria Hotel, New York.

8 . . AFS Nominating Committee, Annual Meeting. Sherman Hotel, Chicago.

9 . . Material Handling Institute, Annual Meeting. New York.

1959

JANUARY

26-29 . . Plant Maintenance & Engineering Show. Public Auditorium, Cleveland.

FEBRUARY

12-13 . . AFS Wisconsin Regional Foundry Conference. Schroeder Hotel, Milwaukee.

15-19 . . American Institute of Mining, Metallurgical & Petroleum Engineers, Annual Meeting. San Francisco.

26-27 . . AFS Southeastern Regional Foundry Conference. Hotel Tutwiler, Birmingham, Ala.

MARCH

9-10 . . Steel Founders' Society of America, *Annual Meeting*. Drake Hotel, Chicago.

11-12 . . Foundry Educational Foundation, *Annual College-Industry Conference*. Hotel Cleveland, Cleveland.

13-14 . . AFS California Regional Foundry Conference. Huntington-Sheraton Hotel, Pasadena, Calif.

16-20 . . American Society for Metals, *11th Western Metal Exposition & Congress*. Pan-Pacific Auditorium and Ambassador Hotel, Los Angeles.

16-20 . . National Association of Corrosion Engineers, *Annual Conference & Show*. Chicago.

APRIL

13-17 . . AFS Engineered Castings Show and 63d Annual Castings Congress. Hotels Sherman and Morrison, Chicago.

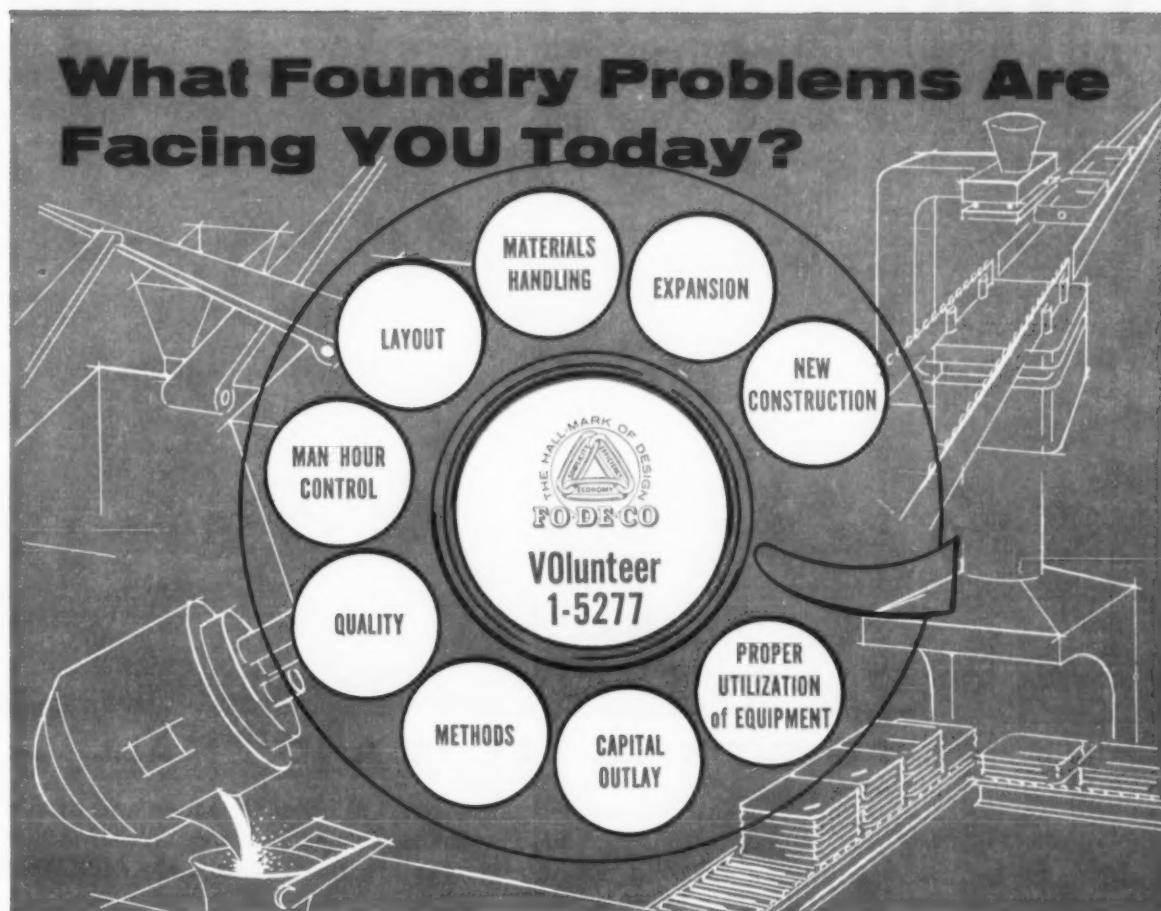
MAY

13-15 . . National Industrial Sand Association, *Annual Meeting*. The Homestead, Hot Springs, Va.

25-26 . . Malleable Founders' Society, *Annual Meeting*. The Homestead, Hot Springs, Va.

STATEMENT OF OWNERSHIP

Statement required by the Act of August 24, 1912, as amended by the Acts of March 3, 1933, and July 2, 1946 (Title 39, United States Code, Section 233) showing the ownership, management and circulation of **MODERN CASTINGS**, published monthly at Pontiac, Ill., for November 1, 1958. 1—The names and addresses of the publisher, editor, managing editor, and business manager are: Publisher, American Foundrymen's Society, Golf & Wolf Roads, Des Plaines, Ill.; Editor, Jack H. Schaum, Golf & Wolf Roads, Des Plaines, Ill.; Managing Editor, Paul R. Foght, Golf & Wolf Roads, Des Plaines, Ill.; Business Manager, Wm. W. Maloney, Golf & Wolf Roads, Des Plaines, Ill. 2—The owner is: American Foundrymen's Society, Golf & Wolf Roads, Des Plaines, Ill. organized not for profit, without stock. Principal officers: President, Lewis H. Durdin, Dixie Bronze Co., Birmingham, Ala.; Vice-President, Charles E. Nelson, Magnesium Div., Dow Chemical Co., Midland, Mich.; General Manager, Wm. W. Maloney, American Foundrymen's Society, Golf & Wolf Roads, Des Plaines, Ill.; Secretary, Ashley B. Sinnett, American Foundrymen's Society, Golf & Wolf Roads, Des Plaines, Ill.; Treasurer, Edward R. May, American Foundrymen's Society, Golf & Wolf Roads, Des Plaines, Ill. 3—The known bondholders, mortgages, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: none. 4—Paragraphs 2 and 3 include, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting; also the statements in the two paragraphs show the affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner. Jack H. Schaum, Editor. Sworn to and subscribed before me this 24th day of September 1958 (Seal). E. R. May, notary public. (My commission expires March 14, 1960.)



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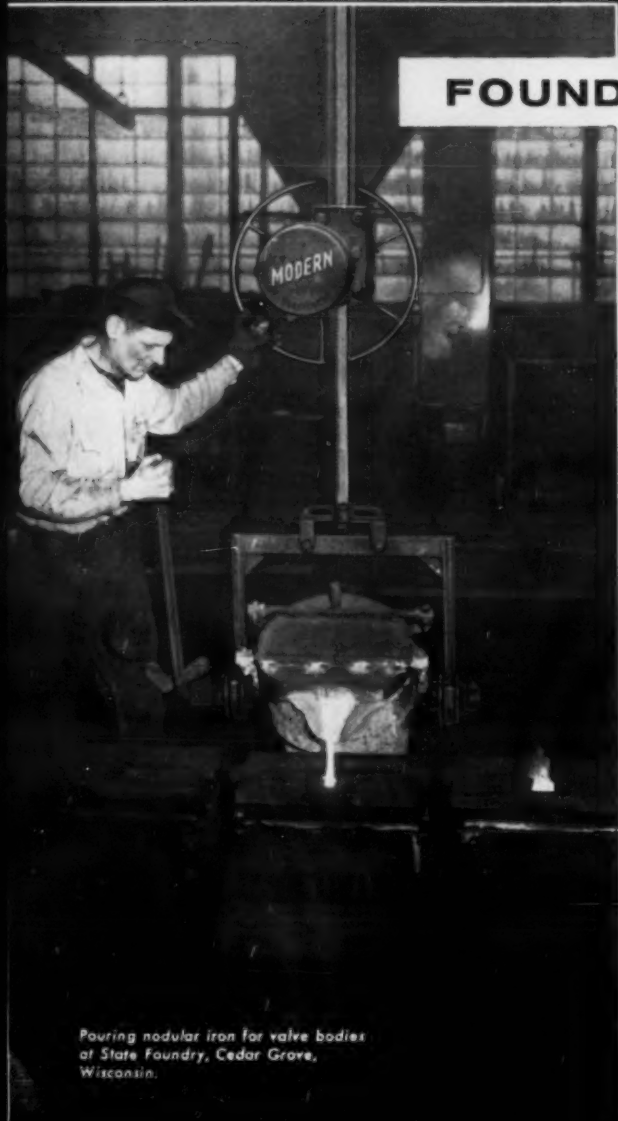
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November 1958 • 1

POURING-CONVEYOR OR PALLET



70 tons of gray iron, cylinder liners, are poured in 8 hours for Allis-Chalmers tractors.



Pouring nodular iron for valve bodies at State Foundry, Cedar Grove, Wisconsin.

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ferrous and nonferrous all boost tonnages and profits through mechanized, one-man pouring. When ladles and pouring devices are synchronized the MODERN way—

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- Over-all quality of metal is higher . . .

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november, 1958
vol. 34, no. 5

modern castings

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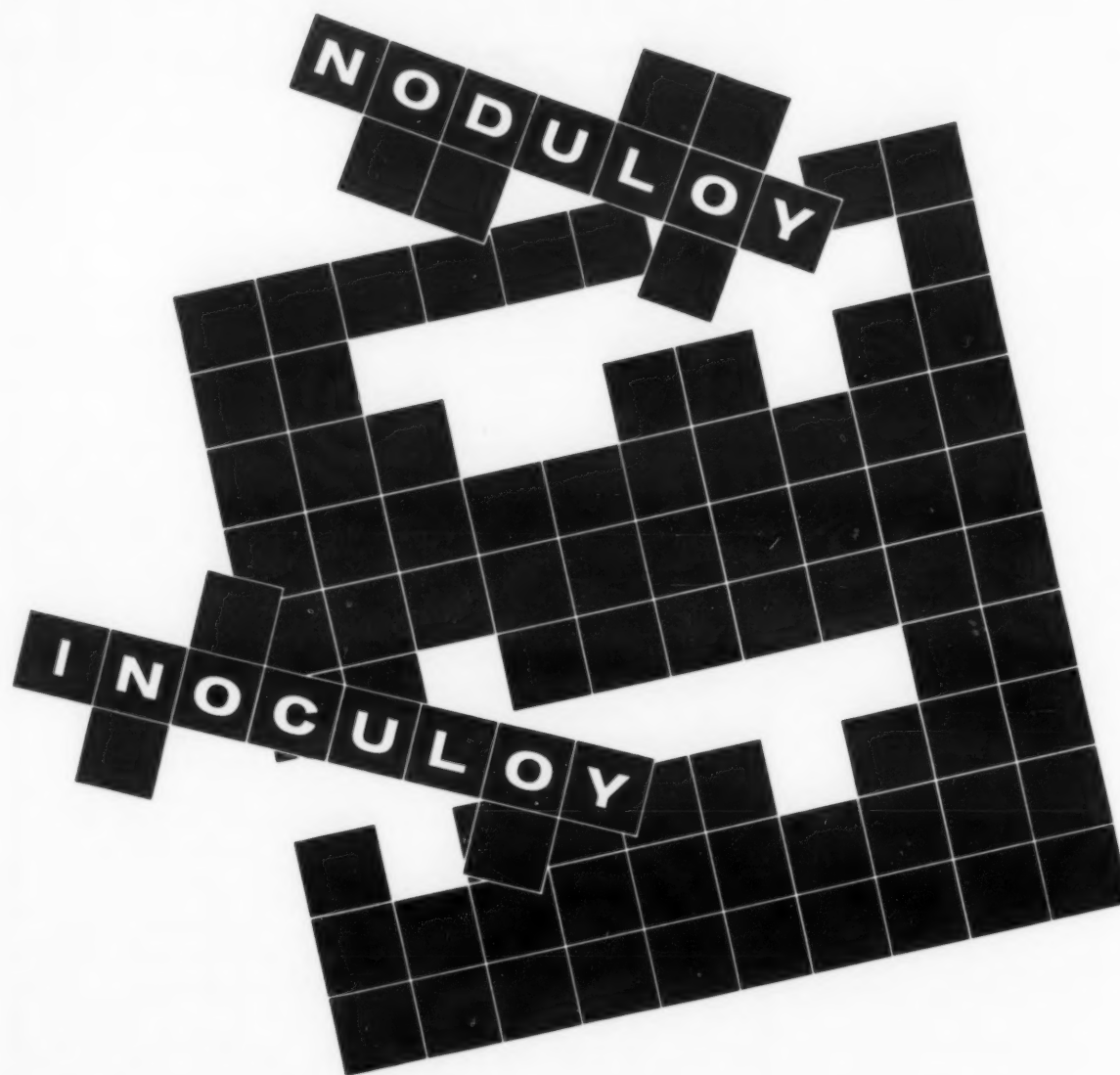
by *Jack Schum*

■ FOUNDRY MATERIALS ARE ON THE MOVE in this issue of Modern Castings. Be sure to read and save for future reference this King-Size Bonus Section dedicated to showing you better ways of handling materials in your metalcasting plant. First you will see how five different foundries — gray iron, malleable iron, steel, aluminum and bronze — move sand, molds and metals throughout their plants. Then comes a roundup of the many mechanical techniques available to solve your materials handling problems. Remember, next to making good castings your biggest job in the foundry is moving materials!

■ "The CAST ALUMINUM ENGINE will soon be standard equipment on all automobiles" according to Dr. R. F. Thomson, General Motors Corp., speaking at the annual meeting of the Gray Iron Founders' Society. This technological break-through has been aided by development of new alloys containing 19-24 per cent silicon, vacuum die-casting and location of "hot-metal" die casting plants adjacent to smelters. Weight reduction is one answer to car buyer's demands for better performance, efficiency and economy. Use of aluminum castings in cars is expected to triple in next few years—to an annual figure of 750 million pounds!

■ FOUNDRIES CAN PRODUCE THEIR OWN CAST IRON DIRECTLY FROM ORE by one of several different methods being used in this country and abroad. In a recent technical paper submitted to the American Foundrymen's Society by H. W. Lownie, Jr. and A. J. Stone, Battelle Memorial Institute, the new process is described. According to the authors "direct reduction of iron ore to molten metal promises foundries melting over 100 tons of iron per day the opportunity to reduce their cost of iron and their dependence on outside sources of pig iron, scrap and coke."

Briefly, one process feeds iron ore, fuel and reducing agent into a rotary kiln. Kilned material is discharged directly into electric furnace to complete the reduction and melt the iron. Practically any iron or steel analysis can be produced. It has been conjectured that foundrymen may even find this source of metal so cheap that they will sell gates and risers on scrap market rather than remelt them!



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A new brochure describing these alloys and listing recommended uses is now available. Call your nearest VCA Office or Vancoram Distributor. Or, if you prefer, write for your free copy.

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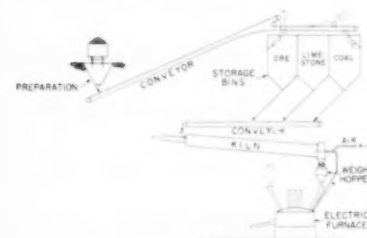
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Iron Reduction Process

■ Economic performance of integrated steel plants employing the Strategic-Udy direct iron reduction process has been guaranteed by Strategic Materials Corp. and Koppers Co., Inc.

Strategic Materials and Koppers state that the guarantee depended only on the availability of reasonably priced electric power and the advantageous location of raw materials.

The willingness of the two companies to certify the economic performance of the Strategic-Udy Process is based largely on the results obtained in a series of tests now being



STRATEGIC-UDY PROCESS

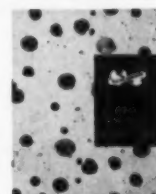
completed at a semi-works plant operated by Strategic Materials Corporation at Niagara Falls, Canada.

In tests of standard shipping-grade iron ore, semi-steel was produced in the Strategic-Udy patented electric furnace with a power consumption averaging 1200 kw-hr per ton of metal. Engineering projections indicate that, in full size commercial plants, power consumption per ton would be reduced to 1000kw-hr. This power factor amounts to about half of that used in conventional electric furnace pig iron smelting.

Coinciding with the announcement, Dr. Marvin Udy, inventor of the process, and R. A. Blackburn, Koppers representative, presented a paper before the annual meeting of the Association of Iron and Steel Engineers describing the process and presenting technical and financial data on a joint development program being carried on at Niagara Falls prototype plant.

Iron ore, coal and limestone are fed into a rotary kiln where partial reduction of the ore takes place. The hot kiln product is directed immediately to an electric furnace, where a short arc held slightly submerged in the slag provides an intense, hot reducing zone in which the charge is quickly and completely reduced.

A principal advantage of the process is the low capital investment required. For example, the cost of a 600 ton per day plant employing the Strategic-Udy Process was estimated at



approximately \$50.00 per ton of annual capacity. Manufacturing costs for this same size plant would vary from \$30.00 to \$50.00 per ton of pig iron depending on price of power and raw materials. Additional figures showed that plants of even smaller capacity were economically feasible.

Other major advantages of the process cited were that:

- Most ores may be used, including flue dust, without special preparation such as agglomerating, sintering, briquetting or nodulizing.

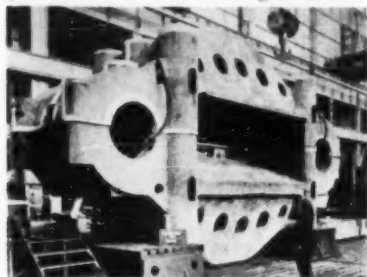
- Complex ores, now of little value, may be used. The process may be designed to selectively remove phosphorous, sulfur, copper, nickel, manganese and other elements.

- Process permits latitude in selecting reductant and fuel, since coal, peat, lignite or coke may be used.

- Control of carbon content is possible. Pig iron with a carbon content of 3.5 per cent, or semi-steel of 0.5 per cent carbon can be directly produced.

here's how

Hydraulik G. M. B. H., Duisburg, West Germany, produced two parts for the world's largest alumi-



num plate stretcher at Kaiser Aluminum & Chemical Corp.'s mill in Ravenswood, W. Va.

here's how

Gries Reproducer Corp., New Rochelle, N. Y., produces hinges for eyeglass frames in a single operation. The three-part assembly, two



hinge halves and a hinge pin, are produced complete in a single operation. Zinc alloy is used to cast the parts by Gries' "Intercast" process.

VOLCLAY BENTONITE

.....**NEWSLETTER No. 58**.....

REPORTING NEWS AND DEVELOPMENTS IN THE FOUNDRY USE OF BENTONITE

|Our Foundry Products

VOLCLAY is a time-tested western bentonite that supplies the dry and hot compression strength to molding sand. VOLCLAY is more durable than other bonds and requires less replacement when additions are required. Best workability is obtained when VOLCLAY is a part of the sand mixture.

MX-80 VOLCLAY is prepared by special granulating and sizing equipment and contains a low dust content. It is chemically unchanged from standard powdered VOLCLAY. Those preferring a bentonite with low dust content and sizing should select MX-80 VOLCLAY.

PANTHER CREEK southern bentonite has been shipped for many years to the foundry industry from two different plants in Mississippi. It is used for rebonding foundry sands and offers the greatest amount of flowability in sand mixtures. It combines excellent shake-out properties with maximum green compression strength.

FIVE STAR WOOD FLOUR is specially prepared from selected wood chips, not residue, and is recommended for controlling uneven volume changes and sand expansion problems. Although FIVE STAR offers some flowability to molding sand mixtures and soaks up water from over-tempered sands, these are only secondary merits for use.

STEEL-FLO FLOUR is a sized and graded wood flour particularly designed for the steel foundry. It is a colored hardwood flour developed after many steel experiments

and is best suited for difficult molding sand and core sand problems.

CARBONIZED WOOD FLOUR is prepared for the foundry by jobber specifications. It is a mixture of wood flour with a controlled carbon additive that contains a certain percentage of volatile and fixed carbon. It is a one unit package combining the effectiveness of both wood flour and seacoal.

CELLFLO is a grain cellulose material that functions quite similarly to wood flour. It is used to overcome sand expansion defects such as scabs, buckles and rat-tails. Its action is similar to cereal in that it increases green compression strength and deformation, yet as a bonus it furnishes good collapsibility. A good dollar buy where cellulose additives are required.

GREEN SHELL CARB is a blend of a graphitic carbon into a cellulose with a volatile hydrocarbon addition. This type carbon furnishes the best casting finish and castings may be produced exactly to pattern tolerances with no more than 4% by weight addition of this carbon to the mixture.

KLEAN SURF Iron Ore Oxide is a carefully selected mineral having a specific iron oxide content blended with combined silicates and non-metallic oxides that offers the best hot plastic deformation in a foundry mold or core sand mixture. It is ground very fine.

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Write for Bulletin 46-B

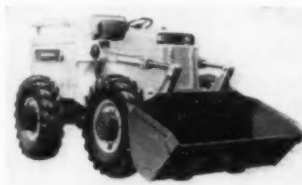
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Circle No. 231, Page 7-8

6 • modern castings

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The post-free cards on page 7-8
will bring more information on these new...

products and processes

TRACTOR-SHOVEL... new model, with 7000-lb carry capacity said to feature more power and traction, stronger components, greater protec-



tion against dirt and dust and other improvements. Power shift transmission provides three speeds in each direction. *Frank G. Hough Co.*

For Manufacturer's Information
Circle No. 101, Page 7-8

METAL DISTRIBUTOR... designed to allow one man to pour large floor area faster than two or more men using hand ladle pouring, say company officials. Advantages include; one-hand control, pouring ease, brake for holding load at any position and minimum of moving parts. *Industrial Equipment Co.*

For Manufacturer's Information
Circle No. 102, Page 7-8

ALL-PURPOSE TRUCK... designed to handle mulled sand, tote boxes, palletized materials, shake-



out sand, crates, loose castings, patterns, drums and foundry clean-up. Operates with either bucket or forks. Officials state interchange requires

less than three min without use of tools. Capacities from 1500 to 4000 lb. *Beardsley & Piper, Div. Pettibone Mulliken Corp.*

For Manufacturer's Information
Circle No. 103, Page 7-8

THREE-WHEELED TRUCK... features various capacities and shapes of cargo containers designed to accommodate sand, coke, scrap and



heavy or light castings. Type of end gates depend on requirements of material being hauled. Load capacity, 1-1/2 ton. *Prime-Mover Co.*

For Manufacturer's Information
Circle No. 104, Page 7-8

GRABS AND GRAPPLES... useful in the metalcasting industry for handling scrap may be used by any crane equipped to handle clamshell buckets. *Erie Strayer Co.*

For Manufacturer's Information
Circle No. 105, Page 7-8

ELECTRIC FORK TRUCKS... feature drive control reportedly providing constantly smooth acceleration and full inching control during stacking operations. Major components of electric truck are interchangeable with company's gas-powered units. Speeds to 6.5 mph forward and reverse possible for 2000-lb model; lift speed, loaded, 50 ft per min. *Industrial Truck Div., Clark Equipment Co.*

For Manufacturer's Information
Circle No. 106, Page 7-8

BIN VIBRATORS... designed for "pin-point" installation on bins, hoppers and chutes up to 14-cu ft capacity. Applied at precise point of sticking, packing or bridging. Manufacturer claims almost noiseless op-

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November 1958 • 7

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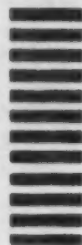
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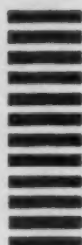
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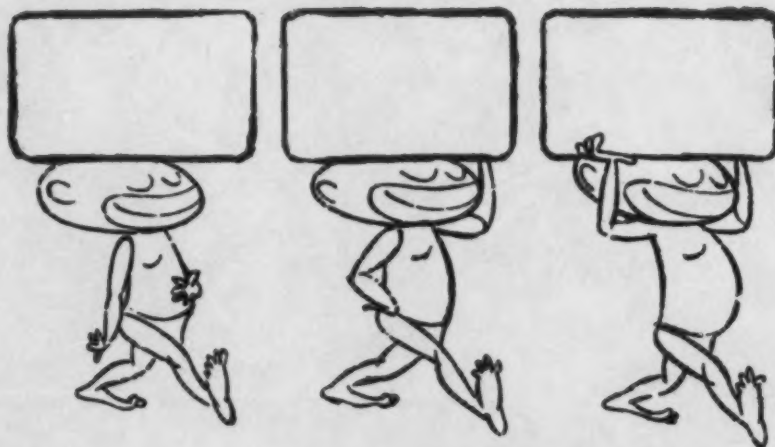
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(some can do it with no hands).

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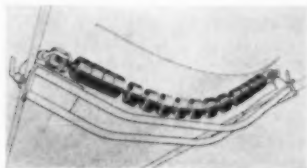
■ Details on these products and processes are available to MODERN CASTINGS readers. See page 7-8.

eration. Weather and dust-resistant housing protects unit. *Eriez Mfg. Co.*
For Manufacturer's Information
Circle No. 107, Page 7-8

BIN DUMPING . . . attachment with 8000-lb capacity can handle bins 30-34 in wide, 23-32 in. high and up to 48 in. long. Rotates full 360 deg in either direction. *Yale & Towne Mfg. Co., Materials Handling Div.*

For Manufacturer's Information
Circle No. 108, Page 7-8

BELT CONVEYORS . . . supported on rollers strung between parallel stringers of steel wire rope eliminate rigid support framing. Results, according to manufacturer, are lower



costs, simple installation and reduced maintenance; they also state conveyor is easy to re-locate or extend. *Joy Mfg. Co.*

For Manufacturer's Information
Circle No. 109, Page 7-8

OVER-HEAD CRANES . . . mounted on monorail track can greatly



reduce production costs where applicable, company reports. Easy rolling motion said to facilitate pouring. *Cleveland Tramrail, Div. Cleveland Crane & Engineering Co.*

For Manufacturer's Information
Circle No. 110, Page 7-8

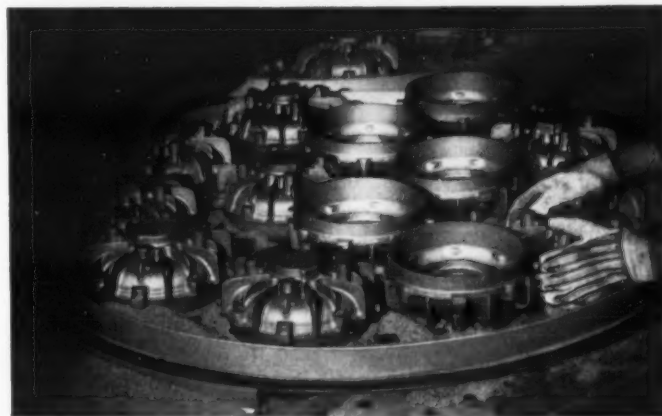
PORTABLE LIFT . . . with load range of 500-2000 lb to maximum height of 112 in. *Hartman Metal Fabricators, Inc.*

For Manufacturer's Information
Circle No. 111, Page 7-8

VIBRATORY FEEDERS . . . feature variable control of rate of flow of sand, castings and other foundry materials. Automatic control allows fast, slow or dribble feed; or instantaneous cut-off. Manufacturer claims no trough abrasion or wearing

Cross section of motor cover casting shows how iron must fill both fins and center hub to solve heat diffusion problem.

Laytham casts complex thick-and-thin motor housings with HANNA PIG IRON



Electric motor housings today are a large volume item produced by Laytham Foundry, Inc., Paterson, New Jersey.

When the National Electrical Manufacturers Association raised its motor ratings, it presented Laytham with a challenge—and a new business opportunity. Where many former housings were made of pressed steel in welded sections, the need for greater heat diffusion would favor cast iron, providing the proper combination of thick and thin elements could be achieved.

Laytham did it. Now they regularly produce motor frame castings with a wide variation in section thickness from thin fins to heavy center hubs. Such castings require iron with a high degree of fluidity. It must also shrink evenly and be free of porosity. Hanna Malleable pig iron filled the bill perfectly.

Hanna has a grade of high-quality pig iron to meet your requirements, too. All regular grades, plus HannaTite and Hanna Silvery, are available in 38-pound pigs and the smaller HannaTen ingots. For pig iron that will help solve your metallurgical problems, call on one of Hanna's trained representatives.

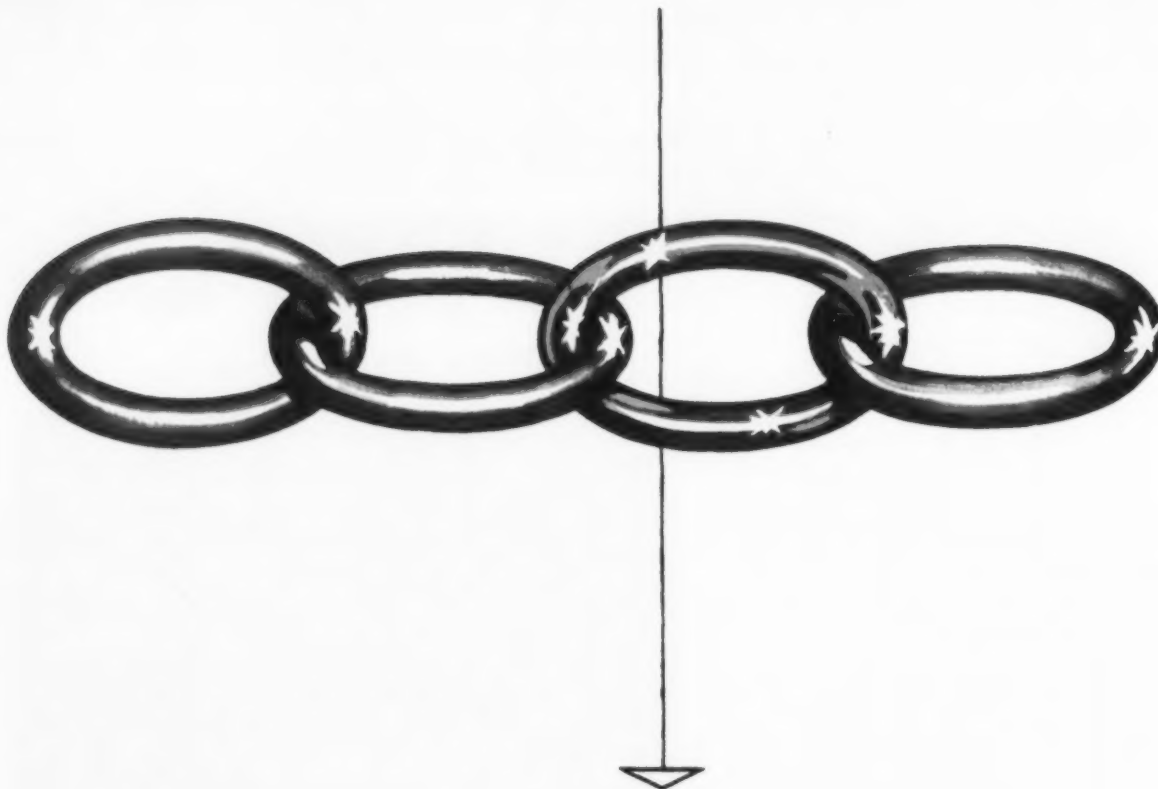
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Merchant Pig Iron Division of

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Circle No. 232, Page 7-8



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There are, today, many ferrosilicon alloys available, offering maximum efficiency and economy for industry's varied requirements. We have developed silicon alloys for specific applications, and extended the use of existing alloys. Our patented mold cast process provides silicon alloys of highest density, uniformity, and cleanliness.

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Circle No. 233, Page 7-8

10 • modern castings

mechanical parts. Complete separate electric controller furnished with conveyor. *Syntron Co.*

For Manufacturer's Information
Circle No. 112, Page 7-8

LADLE FEEDER . . . for making ferro-manganese or other alloy additions to the ladle while steel is being tapped. Officials state it is not necessary to weigh alloys going into hoppers as operator sets unit to deliver specific amounts. Rate also controlled. Designed to eliminate shoveling and hauling of alloy additives, allowing more time for tending to furnace bottom and tap hole conditions. *Blaw-Knox Co.*

For Manufacturer's Information
Circle No. 113, Page 7-8

TURNABLE BARREL FINISHING . . . system incorporates 6 stations automatically rotated to single operator station for unloading and re-loading. Each barrel individually timed. Officials state system will simultaneously deburr and finish variety of ferrous and non-ferrous parts requiring wide range of timing cycles, from 15 min to 50 hr. *Almco Queen Products, Inc.*

For Manufacturer's Information
Circle No. 135, Page 7-8

HOISTS . . . utilize hydraulic power to raise loads up to 10 ft at speeds reportedly up to three times that of conventional hoists. Features



are precision positioning, adjustable-speed action, one-hand operation and finger-tip control, according to company officials. Four sizes, 1/4, 1/2, 1 and 2-ton capacities. *Borg-Warner Corp., Pesco Products Div.*

For Manufacturer's Information
Circle No. 114, Page 7-8

LIFT TRUCK . . . designed to operate effectively in 60-in. aisles and on floors with light load rating. Fluid drive allows smooth starts and stops. Elevates loads up to 1000 lb to lifting height of 60 in. Operator

■ Details on these products and processes are available to MODERN CASTINGS readers. See page 7-8.

led includes battery and charger. Uhrden, Inc., Tubar Lift Div.

For Manufacturer's Information
Circle No. 115, Page 7-8

HAND TRUCK . . . with 1000-lb lifting capacity weighs 130 lb. Officials state treadle which controls elevation and lowering of load is easily accessible. Lock retains load at elevated position. Platform lengths up to 72 in. Automatic Transportation Co., Div., Yale & Towne Mfg. Co.

For Manufacturer's Information
Circle No. 116, Page 7-8

BOOM EQUIPPED . . . lift trucks are claimed useful for loading and unloading gondola cars, boxcars and trucks and for spotting loads in hard to reach places. Booms available for trucks of capacities from 2000 to 20,000 lb. Hyster Co.

For Manufacturer's Information
Circle No. 117, Page 7-8

FLAT TOP CONVEYOR . . . for flush-with-the-floor installations is said to offer a "moving sidewalk" for heavy loads while allowing crossing truck and personnel traffic with the conveyor in motion. Surface sealed to prevent parts and tools falling through and to provide safety. One-direction belt constructed of hinged, abrasion-resistant high carbon steel also available for conventional above-floor mounting. May-Fran Engineering, Inc.

For Manufacturer's Information
Circle No. 118, Page 7-8

DRIVE UNITS . . . for over-head traveling cranes designed to convert manually operated crane bridges to electric drive. Units developed for applications where smooth acceleration and braking are essential. Load swing and drift are reduced. Motor brake spreads time lapse from start to full speed (or full to stop) to maximum of 3-1/2 sec; may be varied. Shaw-Box Crane & Hoist Div., Manning, Maxwell & Moore.

For Manufacturer's Information
Circle No. 119, Page 7-8

PALLET LIFT TRUCK . . . designed to permit efficient operation where space is at a premium, handles any standard double-faced pallet. Maximum lift, 4 in., 2500-lb capacity. Special Products Div., Colson Corp.

For Manufacturer's Information
Circle No. 120, Page 7-8

AIR HOISTS . . . either link or roller chain types available in 1/4, 1/2 or 1 ton capacities. Claimed to be lighter than most hoists, all models

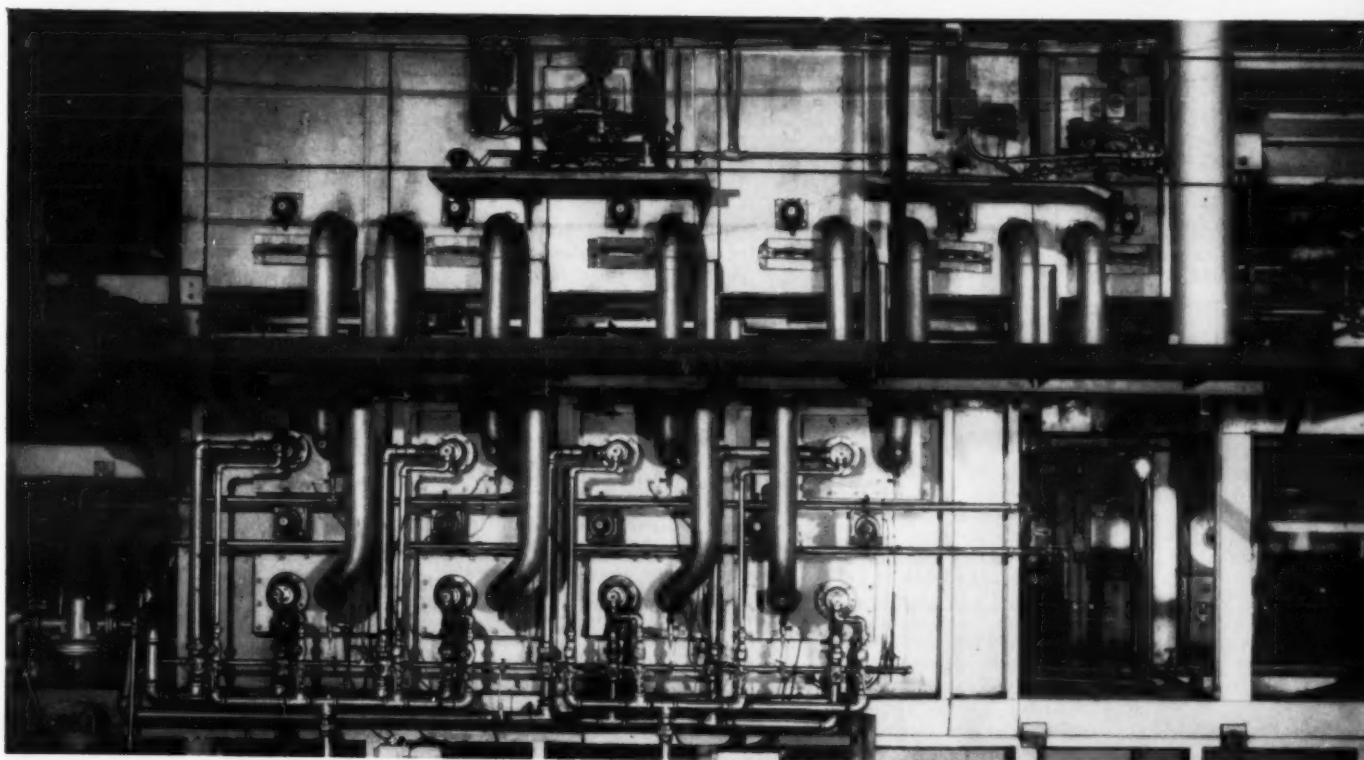
Lowest blast cleaning cost ever with **ROTOBLAST[®]** **STEEL SHOT**

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Electric furnace alloy steel, for the first time shotted in revolutionary vacuum chamber for greater density, eliminating voids and defects. You get a fatigue resisting shot for better, faster cleaning.

✓ Continuous Heat Treating in Controlled Atmosphere

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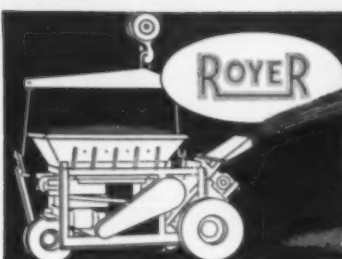
This is one of the new Rotoblast Unit Line Furnaces, the first of their type, with which Pangborn is bringing a new concept of quality to the steel abrasive industry.

Pangborn

See for yourself! Call the Pangborn Engineer in your area or write PANGBORN CORP., 1300 Pangborn Blvd., Hagerstown, Md.

Rotoblast[®] Steel Shot

Circle No. 234, Page 7-8



SAND CONDITIONING TOPICS

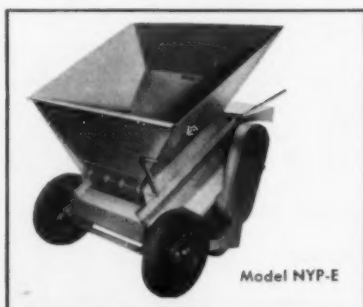
PUBLISHED BY ROYER, MANUFACTURERS OF THE FOREMOST IN SAND CONDITIONING EQUIPMENT

AERATE AND FLUFF AT MOLDING STATION FOR MAXIMUM BENEFITS

To take full advantage of the economies of central sand conditioning, highly mechanized foundries usually find it necessary to sacrifice other elements. Some of these are permeability, flowability and cooled sand.

To produce the best possible molds, sand should be aerated and fluffed as the final operation before it is used. More and more, foundries with central systems are turning to Royer to help improve their sand's properties.

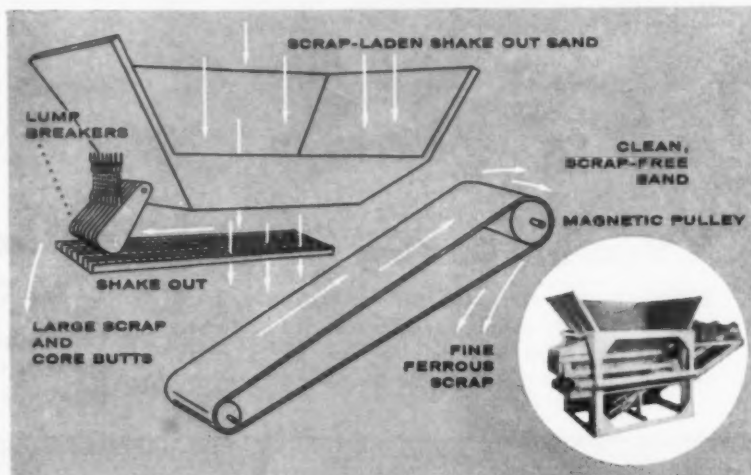
Thousands of foundries have increased the permeability of their molding sand 10 to 20 points by aerating at the molding station with a Royer Separator and Blender, like the Model NYP-E shown here. Besides eliminating the problems of packed sand, they gain the advantages of better flowability and cooled sand. Royerizing reduces new sand requirements and often eliminates entirely the need for facing sand. Castings have smoother finishes, too, reducing grinding and cleaning costs.



Model NYP-E

Royer Sand Separators and Blenders are available in sizes to fit any foundry need. This Model NYP-E handles the charge of a front-end loader. Other models are available with capacities as low as seven tons per hour.

Two bulletins describe the Royer line of Sand Separators and Blenders. Bulletin SS-54 covers machines from 7 to 60 tons per hour maximum capacities. Bulletin NY-54 describes the series engineered for high capacity sand handling systems. Write for your copy today.



Sand Contamination Drains Your Profits

Periodic business recessions in the foundry industry point up the need to eliminate waste and excessive hand labor—or sacrifice profits. In one area of foundry operation—sand contamination—important strides have been made in stopping the profit drainage.

Tramp iron damage usually occurs at the muller, conveyor belts, aerator or patterns. Patterns faced with contaminated sand produce poor casting finishes and high scrap loss. Probably the most efficient and economical way to remove contamination and produce clean sand is with a Royer Scrap Control Unit.

Referring to the drawing, shake out sand from the molding floor is dumped by front-end loader into the receiving hopper. Large scrap is riddled out by the Shake-Out and discharged at convenient wheelbarrow height for collection and removal.

Ferrous scrap small enough to pass through the grid openings of the Shake-Out is separated from the sand by a magnetic pulley at the upper end of the conveyor belt. Depending upon the degree of mechanization you employ, clean sand discharge may be made to a skip hoist feeding a muller, conveyor belt, or into the hopper of a Stationary Royer Separator and Blender for cooling, aeration and blending. We recommend discharge onto a heap for trans-

porting by front-end loader to a Portable Royer Separator and Blender at the molding station for cooling, aerating and fluffing.

If tramp iron is the cause of any of your profit loss, we invite you to discuss your problem with the foundry-wise Royer agent serving your territory. He'll explain how a Royer Scrap Control Unit can pay for itself in less than two years, stop your profit drainage and improve the quality of your castings.

Your first step in stopping profit drainage caused by sand contamination is to mail the coupon for our latest Scrap Control Bulletin. We'll send it without obligation—plus the name of the agent who serves you.

ROYER FOUNDRY & MACHINE CO.

155 PRINGLE STREET
KINGSTON, PENNA.

Sand Contamination is cutting into our profits. Please rush me your Scrap Control Bulletin.

NAME _____

COMPANY _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

(advertisement)

operate on line pressure of 80 psi. Shaw-Box Crane & Hoist Div., Manning, Maxwell & Moore, Inc.

For Manufacturer's Information
Circle No. 121, Page 7-8

DETACHABLE BOOM . . . for gasoline or LP gas tractors of 3000-5000 lb draw bar pull. Manufacturer states boom can be mounted or removed in minutes. Which may be



used with or without boom. Useful for occasional lifting and transporting heavy castings, materials or machinery over short distances. Mercury Mfg. Co.

For Manufacturer's Information
Circle No. 122, Page 7-8

HOT MATERIALS CONVEYOR . . . for handling of foundry materials such as hot sprues, castings and slag. All metal conveyor is vibrated by 20 psi air pressure. Said to require little maintenance, with the only moving part the air piston which is automatically lubricated by injecting oil into air line. Reportedly carries material uphill 5 deg. Cleveland Vibrator Co.

For Manufacturer's Information
Circle No. 123, Page 7-8

SAFETY CABLE . . . designed to prevent accidents from suddenly moving loads during unloading dump cars or hoppers. When attached



across top of hopper, cable forms taut line to which workman attaches safety belt. Cable can be slacked off as level of load lowers. Includes hand winch, 1/4-in. cable and anchor fittings. Lowery Brothers, Inc.

For Manufacturer's Information
Circle No. 124, Page 7-8

CONVEYOR CLEATS . . . which increase belt life and efficiency may be applied on the job, according to manufacturer. Foundry applications

■ Details on these products and processes are available to MODERN CASTINGS readers. See page 7-8.

include moving and loading sand and slag. Said to be particularly useful as replacement for metal cleats. *Flexible Steel Lacing Co.*

For Manufacturer's Information
Circle No. 125, Page 7-8

FORK-LIFT TRUCK . . . claimed to speed storage operations both inside and outside the plant by hauling multi-unit loads such as cast railroad



couplings as pictured here. Two-ton capacity, can travel up to 10 mph. Heavy-duty laminated tires. *Towmotor Corp.*

For Manufacturer's Information
Circle No. 126, Page 7-8

DETACHABLE CONTAINER . . . for hauling of scrap, waste, sand and slag on trucks are available for over-the-road use in capacities up to 30,000 lb. Truck deposits containers up to and over 40 cu yd on or



off docks, and, according to company, raises loaded container back into position without use of winches, sheaves, telescopic cylinders, cables or chains. Operator need not leave cab of truck. Backing into container engages lifting hook which pulls container onto truck. *Dempster Brothers, Inc.*

For Manufacturer's Information
Circle No. 127, Page 7-8

TAIL CHAINS . . . primarily intended for use on truck and tractor winch lines are, according to manufacturer, equally adaptable for use on any wire where flexible end



Checking Regulus I surface-to-surface missile prior to launching from experimental cart. For the use of Ni-Cr-Mo steel castings in the launching cart,

Chance Vought was judged a National Award Winner in the Third Product Development Contest conducted by the Steel Founders' Society of America.

How castings of 4330 nickel-alloyed steel help boost a missile up, push assembly cost down

20-Ni-Cr-Mo steel castings replace 73 detail parts, eliminate 300 hardware items in new launching cart


Regulus I, made by Chance Vought, is normally boosted skyward from a rail launcher. The Navy, however, wanted a more economical launching technique that would utilize a carrier's powerful catapults . . . that would also simplify handling of the missile aboard ship.

The answer was the expendable catapult cart you see above.

The carts, also made by Chance Vought, are assembled with 20 cast 4330 steel cluster joints welded to tubing of the same material. These castings replaced 73 detail parts required in the plate-type fittings of the experimental units used to prove the idea. They also eliminated 300 hardware items, such as nuts and bolts. Assembly is easier, and far more economical.

Why Ni-Cr-Mo steel for the castings? The 4330 composition of 1.8% Ni .65% Cr .25% Mo heat treated to 125,000 and 150,000 psi gives these castings the combination of high strength and great toughness needed to stand up to the tremendous shock of take off.

What about your product? Can it use the economy, high strength, and shock resistance offered by Ni-Cr-Mo steel castings? You can get complete information by writing:

THE INTERNATIONAL NICKEL COMPANY, INC.
67 Wall Street  New York 5, N. Y.

INCO NICKEL

NICKEL MAKES ALLOYS PERFORM BETTER LONGER

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Mars, Pennsylvania

"WORLD'S LARGEST MANUFACTURER OF FLUXES, PURIFIERS AND EXOTHERMIC COMPOUNDS FOR ALL METALS AND ALLOYS"

Circle No. 236, Page 7-8

THERMOTOMIC HoTop

For Short Head Castings

SAVES 5 WAYS

1. PERMITS LOWER COPEs
2. LESS SAND HANDLING
3. ASSURES SOUND, SHRINK-FREE CASTINGS
4. UP TO 35% LESS MATERIAL THAN COMPETITIVE PRODUCTS
5. REDUCES PRODUCTION TIME AND COSTS . . . INCREASES YIELD!

Soffel's Thermotomic HoTop produces sound, shrink-free castings . . . but even more important, they increase metal yield!

By reducing the percentage of unuseable metal at the top of every casting, they add an appreciable EXTRA profit to every pour.

From a dollar and sense standpoint, call your nearest PMP distributor to arrange for a demonstration in your plant under your supervision. Only then will you be able to estimate impressive savings involved. Call your distributor today!

member will increase usefulness. Designed to eliminate difficulties encountered in operations such as wrapping wire rope around machinery for lifting, loading, hauling or skidding. Proof-tested up to 48,500 lb. *American Chain & Cable Co.*

For Manufacturer's Information
Circle No. 128, Page 7-8

LOW-LIFT . . . electric pallet truck designed for operation in 6-ft aisles. Total lift, 4 in. Power lifting and



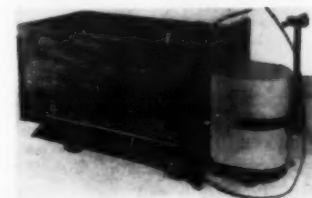
lowering controlled by pushbuttons on rear of handle. Capacities of 4000-6000 lb. *Barrett-Cravens Co.*

For Manufacturer's Information
Circle No. 129, Page 7-8

VIBRATORY FEEDER . . . described by manufacturer as offering fast, high-capacity, rate-controlled feeding of bulk materials. Electromagnet drive produces 3600 vibrations per min; fingertip adjustments from slow dribble to maximum of 3 tons per hr. *Syntro Co.*

For Manufacturer's Information
Circle No. 130, Page 7-8

POWER CONVERSION . . . of hand-propelled equipment with unit designed for either permanent attachment to single truck or quick-coupling with a fleet of trucks. Forward and reverse motion, steering



and brake in one compact unit. Features fluid drive claimed to eliminate jolting or jarring of load. Brake released only when motor is running. Officials state no change of existing running gear necessary for installation. *Vanguard Engineering Co.*

For Manufacturer's Information
Circle No. 131, Page 7-8

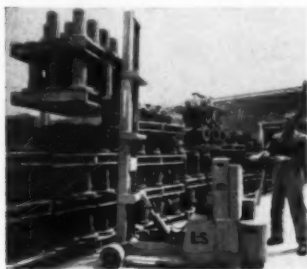
GAS-ELECTRIC TRUCKS . . . combine gas engine and electric motor reportedly resulting in fuel savings.

■ Details on these products and processes are available to MODERN CASTINGS readers. See page 7-8.

Unit eliminates need for clutch, fluid coupling, torque converter or multiple speed transmission. Hydraulic reservoir and gas tank are located in dash panel to protect against damage. Capacities from 4000 to 10,000 lb. *Automatic Transportation Co., Div. Yale & Towne Mfg. Co.*

For Manufacturer's Information
Circle No. 132, Page 7-8

LIFT TRUCK . . . handles palletized loads of castings in and out of tight places and through narrow



aisles and doorways by means of operator working controls while walking behind the unit. *Lewis-Shepard Products, Inc.*

For Manufacturer's Information
Circle No. 133, Page 7-8

BRIDGE CRANES . . . hand operated, underhung, single bridge type designed as standby installations permitting accurate spotting of loads. Capacities of 1 to 10 tons. *American Chain & Cable Co.*

For Manufacturer's Information
Circle No. 134, Page 7-8

LIFTING AND PULLING . . . unit is said to take place of lift, hoist and tackle; and can be mounted in any position. Unit designed to ac-



complish work of several men with one operator, features all working parts enclosed, rugged construction and simple operation. *Indus Corp.*

For Manufacturer's Information
Circle No. 135, Page 7-8

For the finest in Mechanization



Jeffrey's **UNIVERSAL MOLD CONVEYOR** is Flexible

Molds move on the level, up, down and around on the Jeffrey Universal Mold Conveyor . . . full operations at elevations to best suit each job. It's working in many foundries around the country, helping to boost their earnings.

Operation is smooth; power consumption is low; equipped with sealed-for-life ball bearings and oil-impregnated bushings; internal takeup on each car.

MECHANIZE with Jeffrey machinery and save. Your materials-handling and power transmission equipment will give more efficient, economical operation if you employ time-tested, dependable Jeffrey products.

All moving parts are shielded, giving full protection against sand, shot and runoff. Rugged construction gives strength to spare for the toughest jobs.

MORE FACTS:

New Catalog 911 tells about this and other Jeffrey foundry equipment. For a copy, write The Jeffrey Manufacturing Company, 977 N. Fourth Street, Columbus 16, Ohio.



CONVEYING • PROCESSING • MINING EQUIPMENT... TRANSMISSION
MACHINERY... CONTRACT MANUFACTURING

Circle No. 237, Page 7-8

November 1958 • 15

Production Foundry Reports:
Amazing Results with NEW Fume-Free...



FOUNDREZ 7605 BINDER ...no smoke, drying cycle cut in half!



"Our use of FOUNDREZ 7605 has been extremely profitable for us. Its fume-free property alone would justify its use...having solved a serious employee turnover problem." This statement is made by Mr. William E. Virgin, factory superintendent of Samuel Eastman Company, Inc., Concord, New Hampshire.

But that's not all Mr. Virgin has to say about this Reichhold amino-aldehyde thermosetting core binder!

"In addition, by converting to FOUNDREZ 7605, we increased our oven capacity by 75%, cut back our curing cycle by 50%, stepped up production per man-hour in the core department by 20%, reduced maintenance work on core-making equipment, reduced fuel oil cost and eliminated 85% of casting scrap caused by blows."

You can duplicate the savings made by the Samuel Eastman Company, which has been a manufacturer of fire fighting equipment since 1824. Use RCI FOUNDREZ 7605 for core binding. Reichhold will deliver this unique

liquid resin to you in tank cars, tank trucks or drums.

Write to RCI for Technical Bulletin F-8 which gives full data on FOUNDREZ 7605.

REICHOLD CHEMICALS, INC.,
 RCI BUILDING, WHITE PLAINS, N. Y.

REICHOLD FOUNDRY PRODUCTS

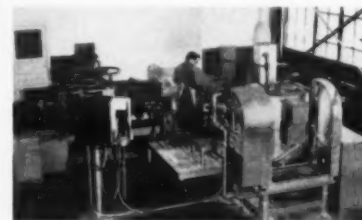
FOUNDREZ—Synthetic Resin Binders
 COROVIT—Self-curing Binders
 coRCiment—Core Oils

Creative Chemistry... Your Partner in Progress



New Die Casting

The new die-casting research laboratory of Aluminum Co. of America is now operating in a special wing of the Alcoa Chicago Works die-casting plant. This close affiliation of research and production will permit the theoretical approach to rub shoulders with practical production needs. Such a closely integrated combo should come up with solutions to many of the daily problems plaguing the operating men in die-casting plants throughout the country.



Experimental die-casting machine.

The laboratory is equipped for full-scale pilot plant operations capable of tackling fundamental studies of the die-casting process as well as practical problems of immediate urgency. Center of activity is the 250-ton cold chamber machine capable of handling 6 to 8 lb shots of aluminum-base alloys. Molten metal is readied in a gas-fired melting furnace and a holding furnace. Auxiliary equipment includes sensitive temperature-measuring instruments for accurately controlling metal and die temperatures.

Quality control and evaluation of

product report . . .

Hot shakeout sand and scrap metal ride this conveyor belt 12 hr a day at Golden Foundry, Columbus, Ind. The hot load (180 F) travels 85 ft where it is reclaimed for reuse. The



24-in.-wide, five-ply belt is manufactured by B. F. Goodrich Co., Akron, Ohio. It reportedly has been in service for three years, showing little or no wear.

For Manufacturer's Information
 Circle No. 304, Page 7-8

Research Lab

results are further guaranteed by additional laboratory facilities that include tensile testing, radiographic inspection, metallographic microscopes and cameras, spectographic and wet chemical analysis equipment and heat-treating furnaces.

John H. Moorman, formerly chief metallurgist for Alcoa's Garwood Works, heads the new facility. According to Moorman, "Research activities in our new laboratory will be directed toward better control of die temperatures, improving molten metal injection techniques and producing metallurgically sound die castings."

By developing consistent techniques for producing perfectly sound die castings it will be possible to improve the as-cast properties by subsequent heat treating without running the risk of encountering "blistering."

With the advent of multicolored anodized finishes on aluminum die castings they should find more decorative trim and functional applications in automobiles, electronic and business machines, appliances, portable tools and internal-combustion engines. With the die cast automotive engine block already a reality in European cars and in advanced stages of pilot-plant experimentation in Detroit, the die-casting industry is on the threshold of entering a new era in modern casting technology.

Alcoa's new die-casting research laboratory is one more valuable facility helping to pace the many developments which will be in our metalcasting future.



"What's wrong now?"

Quality Products for the Foundry Trade

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PIG IRON

NEVILLE
FOUNDRY COKE

Send for Your Copy of This Free
GRAY IRON BROCHURE



An illustrated brochure on the Gray Iron Industry and its place in the nation's industrial economy. Includes descriptive data on casting practices and the story of the production of Neville Pig Iron and Neville Foundry Coke.



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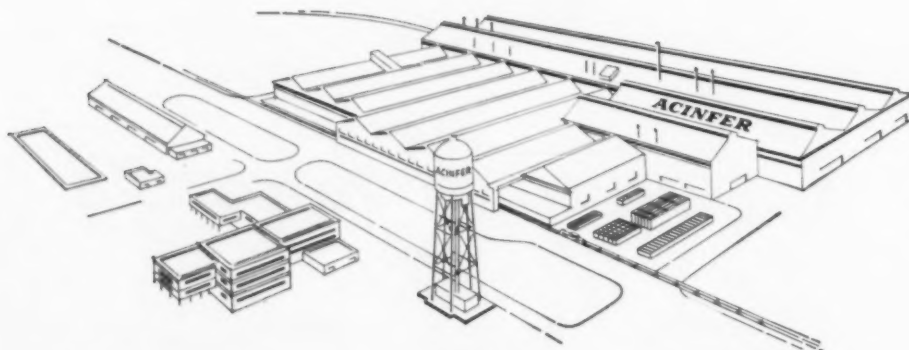
Circle No. 239, Page 7-8

November 1958 • 17



A Lester B. Knight & Associates, Inc. Case History

ACINFER, S. A. PLANT ENGINEERED BY KNIGHT...



...JUDGED MOST MODERN IN ARGENTINA FOR 1958

The Knight organization had overall responsibility from planning to successful operation of a large malleable and grey iron foundry and machine shop recently awarded a Diploma of Honour by McGraw-Hill's "Ingenieria Internacional Industria" as the most modern industrial plant in the Argentine Republic. This integrated production-jobbing plant, the largest in South America, was designed by Knight engineers who purchased and shipped the facilities, supervised installation and furnished a team of U. S. foundrymen to operate while training Argentine personnel to take over. The Knight organization has designed plants and developed modernization programs for more than 700 clients in various parts of the world.

For consultation on any modernization program call on Lester B. Knight & Associates, Inc.

KNIGHT SERVICES INCLUDE:

Foundry Engineering • Architectural Engineering • Construction Management • Organization Management • Industrial Engineering • Wage Incentives • Cost Control • Standard Costs
Flexible Budgeting • Production Control • Modernization • Mechanization • Methods
Materials Handling • Automation • Survey of Facilities • Marketing



Lester B. Knight & Associates, Inc.

Management, Industrial and Plant Engineers

Member of the Association of Consulting Management Engineers, Inc.
549 W. Randolph St., Chicago 6, Ill.

917 Fifteenth St., N.W., Washington, D. C.

New York Office—Lester B. Knight & Associates, 375 Fifth Ave., New York City 16

Knight Engineering Establishment (Vaduz), Zurich Branch, Bahnhofstrasse 17, Zurich, Switzerland

Circle No. 240, Page 7-8



**pouring
off
the heat**

have you? . . .

■ From time to time, we have read articles in your publication regarding preventive maintenance. We are wondering whether it would be possible for you to select several recent articles on reducing upkeep and downtime costs. If so, we would certainly appreciate your cooperation in mailing us the information.

J. P. KEATING
Neeah Foundry Co.
Neeah, Wis.

. . . yes, we have . . .

You couldn't have asked a more timely question. Our September issue is filled to the brim with maintenance info. Copy is enclosed.

J. H. SCHAUW Editor

. . . then let's have it!

PLEASE FORWARD 10 COPIES
SEPTEMBER ISSUE.

NEENAH FOUNDRY CO.

clean sweep

■ We think your article, "What is Preventive Maintenance" in the September issue is nicely done. You have made excellent use of the maintenance conference material. We are glad to see your recognition of what we consider an important subject for every industry.

CARL G. WYDER
Factory Management
and Maintenance
New York

questioning the answer

■ We were interested in your answer to the question of pouring pure copper castings in a recent Questions and Answers column.

The use of tongs to submerge the additive agent and the iron rod to stir would cause a contamination of iron in the melt. This could be significant if electrical conductivity is important.

A special holding device should be used for submerging the additive, and ceramic stirring rods should be used.

BEN R. SHIPLEY
Vesuvius Crucible Co.
Pittsburgh, Pa.

Protest Finishing Code

■ Stainless steel castings producers meeting at the Heat and Corrosion Resistant Alloy Castings Conference held at the International Nickel Company's Harbor Island Test Station, Wrightsville Beach, N. C., cited poor specifications as impeding their advance in producing components for nuclear power equipment.

Surface finish specifications were under attack by the group which stated that some specifications were "unrealistically restrictive" — so restrictive that they are retarding the development of more efficient power plants.

Several castings consumers present for the conference indicated that surfaces only half as smooth as those being specified would be adequate. The conference would replace specifications calling for "RMS" surface finish by designating as a standard the "Cast Surface Comparator."

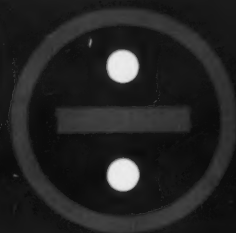
High alloy foundrymen at the conference took note of reports from some equipment builders which indicated a need for improved materials to handle liquid metal coolants. Apparently under certain conditions, sodium, one of the important heat-transfer media, leaches out carbon from stainless steel. A bright spot in this picture, however, came from a pump builder who reported that his company had made and successfully tested pumps with impellers cast of type CF-8C (containing columbium), for handling liquid sodium around 950 F. He also reported on design of an all-cast-stainless pump (both impeller and casing) of type CF-8 to handle uranyl sulfate.

Some users expressed the desire for alloys stronger than those now used in pressurized water reactors operating in the 600 to 1000 F range. Several answers to this problem were suggested.



Ignatz! Stamp your OK,
don't drill your initial.

SYMBOL OF PURITY & UNIFORMITY



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- Domestic and Australian zircon foundry sands
- Zircon foundry flours in 200 and 400 mesh particle sizes
- Orefraction Zircon Sand and Flour meet S. F. S. A. specifications.

Orefraction
MINERALS INC.

ANDREWS, SOUTH CAROLINA

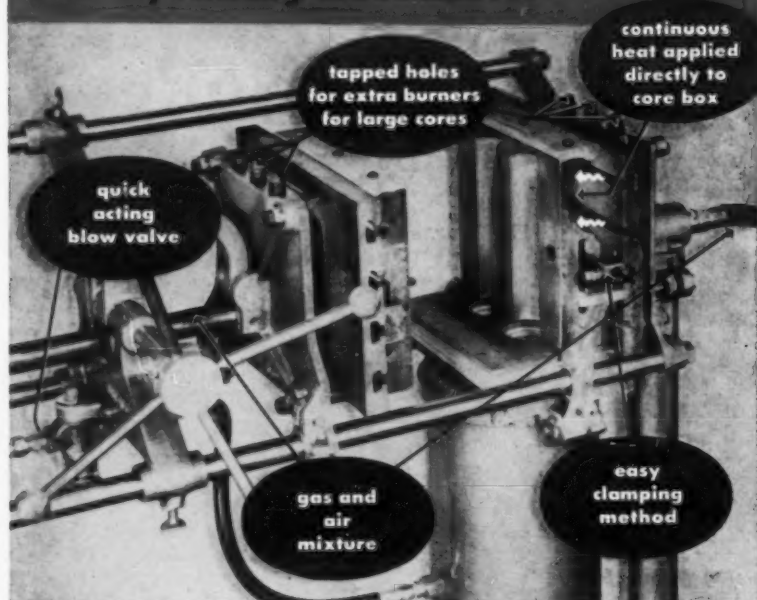
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F. B. Stevens Division, Windsor; Toronto

'DEPENDABLE' SHELL CORE

MACHINE brings shell core molding within reach of every foundry because...



1. It uses your present core boxes with little or no alterations necessary. No need to build new core boxes.
2. Continuous heat applied directly to back of core box. Thin sections most desirable. Fast and efficient.
3. Operates on any type of gas, natural, manufactured, mixed or bottled. Economical.
4. Quick change for short runs. Clamps provided.
5. Produces intricate small cores at the rate of ten per minute, and cores up to 9" diameters or 18" lengths at the rate of one per minute.
6. Various thicknesses of core can be obtained by length of time invested.
7. Eliminates the need for driers or pasting.
8. Shell cores produced offer Unexcelled Permeability . . . Collapsibility . . . Accuracy . . . Easy Shake-Out.
9. Low initial cost . . . \$1097, F.O.B. Portland, Oregon.
10. Your Dependable Shell Core Machine comes completely equipped with accessories and assembled ready to operate. Just hook up to gas and compressed air lines. Shipping weight, crated, 400 lbs.

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Snyder Foundry Supply Co. Los Angeles 38, Calif.	The Foundry Supply Co. Minneapolis 14, Minn.	St. Louis Coke & Foundry Sup. St. Louis, Missouri
Kramer Industrial Sup. Denver 5, Colorado	Frank H. Jefferson, Inc. Seattle 4, Wash.	Lloyd Canfield Foundry & Expt. Co. Kansas City, Kansas
Shallway International Corp., Los Angeles, Calif., and Crawley, England		

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let's get personal

F. A. Park, Kenneth Perkins, H. T. Peters and L. E. Raymond . . . were appointed senior process engineers, the Singer Mfg. Co., New York, on the staff of R. W. Stewart, vice-president in charge of production. They will be responsible for the investigation of new materials, new processes and techniques for the company's factories here and in 11 other countries. Park, former assistant superintendent in Singer's Elizabethport, N. J. factory, will concentrate on advanced foundry practices, including sand casting, shell molding, permanent molding and the carbon dioxide process.

David Brown . . . has been named chief inspector, Alloy Precision Castings Co., Div. Mercast Corp., Cleveland; and E. C. Kinnaman was promoted from quality control manager to production manager. This division produces precision investment castings by the lost wax, frozen mercury and Merdean processes.

A. E. Hageboeck . . . is now vice-president, Frank Foundries Corp., Moline, Ill. He is a member, AFS Quad City Chapter.

H. W. Campbell . . . has been elected general manager and director, Lynchburg Foundry Co., Lynchburg, Va. He had been assistant general manager since 1954, a position now held by W. E. Masincup, Jr.

W. S. Williams has been appointed manager of standards, succeeding Masincup. Williams is a member, AFS Piedmont Chapter.

W. J. White . . . Shell Equipment Co., Connellsville, Pa., is now sole representative for sale and service of Shell-O-Matic shell mold machines.

M. L. Phillips . . . has been appointed vice-president of Alloys & Chemicals Mfg. Co., Cleveland. N. L. Butkin, president, stated, "Phillips will continue as sales and operations manager and will direct the technical policies of the company." The principal products of Alloys & Chemical Mfg. are specification aluminum alloys and primary zinc-base die casting alloys.

T. R. Evans . . . has been named sales manager of Fine Metals & Chemicals Division of Electro Metallurgical Co., New York, and will be responsible for the field sales and customer service.

D. J. Richards . . . retired as vice-president sales and director of E. F. Houghton & Co., Philadelphia. Frank Ross has been promoted to vice-president sales and C. R. Schmitt to assistant vice-president sales.

R. A. Lawson . . . formerly vice-president in charge of sales, Monarch Aluminum Mfg. Co., Cleveland, is now vice-president-marketing. W.



H. W. Campbell



T. R. Evans



F. Ross

V. Tracy has been appointed general sales manager of the company's Commercial Div. He was formerly assistant general sales manager, Commercial Castings Div.

W. E. Daugherty . . . is the new district sales manager for southern California, southern Nevada and Arizona, Mexico Refractories Co., Mexico, Mo. He joined the company in 1957 as general manager of its subsidiary, Missouri Refractories Co., Los Angeles.

J. E. Zane . . . will represent the American Zinc Institute, Inc., New York, as market development engineer. He previously served as sales training coordinator, Edsel Div., Ford Motor Co., Dearborn, Mich. Zane's office will be located in Detroit; his functions will include technical and educational activities related to promotion of zinc die castings.

A. C. Christensen, Sr. . . . and his son, A. C. Christensen, Jr., have been appointed sales representatives for Shell Process, Inc., West Springfield, Mass. They will cover northern Illinois and the state of Iowa, with headquarters in Chicago. Christensen, Sr. was formerly vice-president in charge of engineering, National Engineering Co., Chicago.

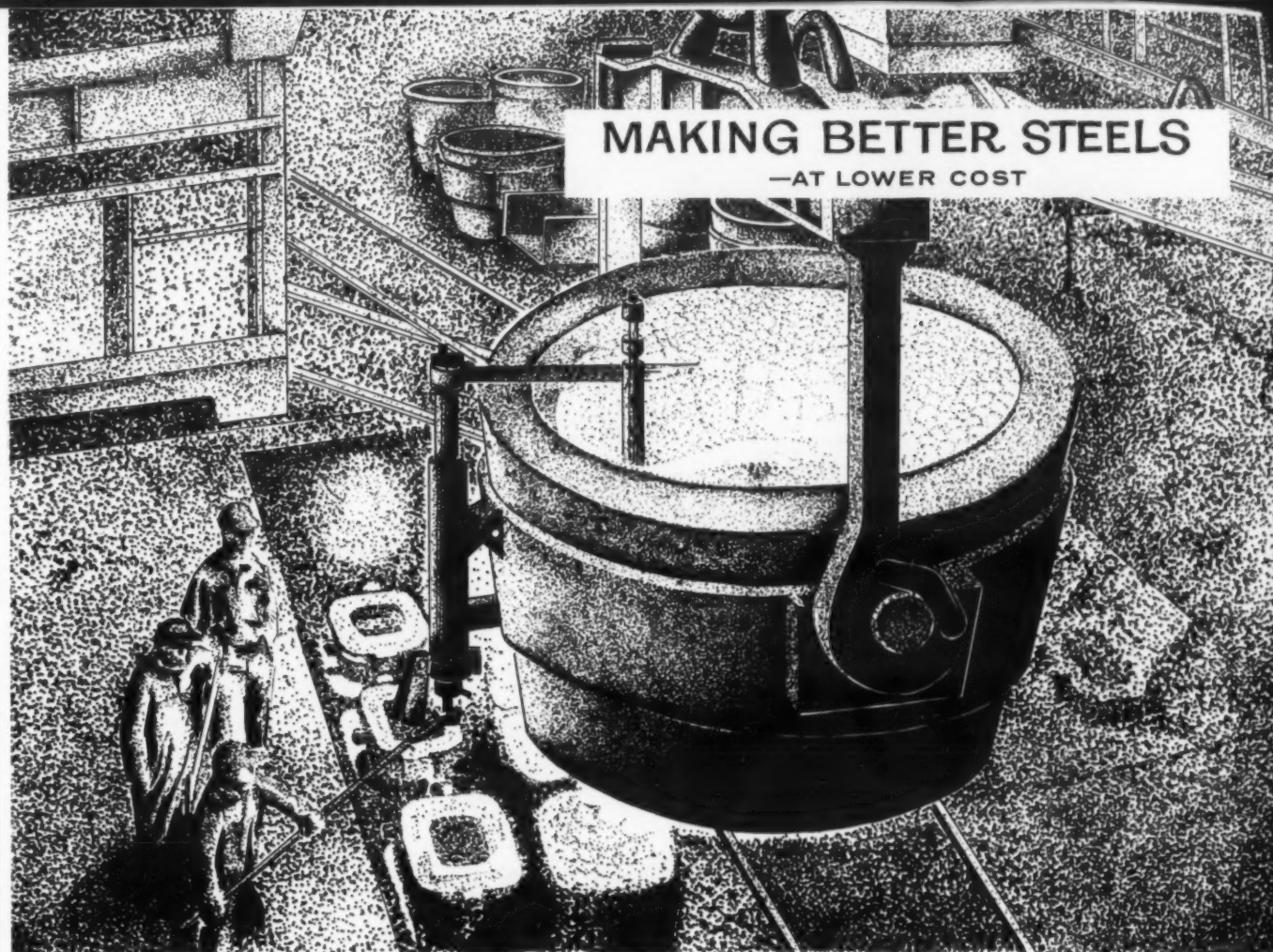
T. A. Ripley . . . vice-president of manufacturing, James B. Clow & Sons, Inc., Chicago, has been elected to the firm's board of directors. A vice-president since 1955, Ripley has been with the company for 35 years.

H. T. Hunter . . . sales manager, Philadelphia Bronze & Brass Corp., is now vice-president of the company. He has been with the company since 1954 and will continue in his capacity as sales manager.

R. L. Pope . . . is now district manager in Cleveland, Electro Metallurgical Co., Div. of Union Carbide Corp., New York. He has been associated with the company since 1952. Pope is a member, AFS Metropolitan Chapter.

L. J. Barron . . . Motor & Machinery Castings Co., Detroit, has been elected vice-president of the firm. He is a member, AFS Detroit Chapter.

W. P. Hanks . . . is now midwest district manager, Cleveland Tramrail Div., Cleveland Crane & Engineering Co., Wickliffe, Ohio. He was formerly southern district manager and he has been with the firm for 32 years.



MAKING BETTER STEELS

—AT LOWER COST

TEEMING

. . . top quality steel from ladle to ingot climaxes another job well done by melters who know every trick of their trade.

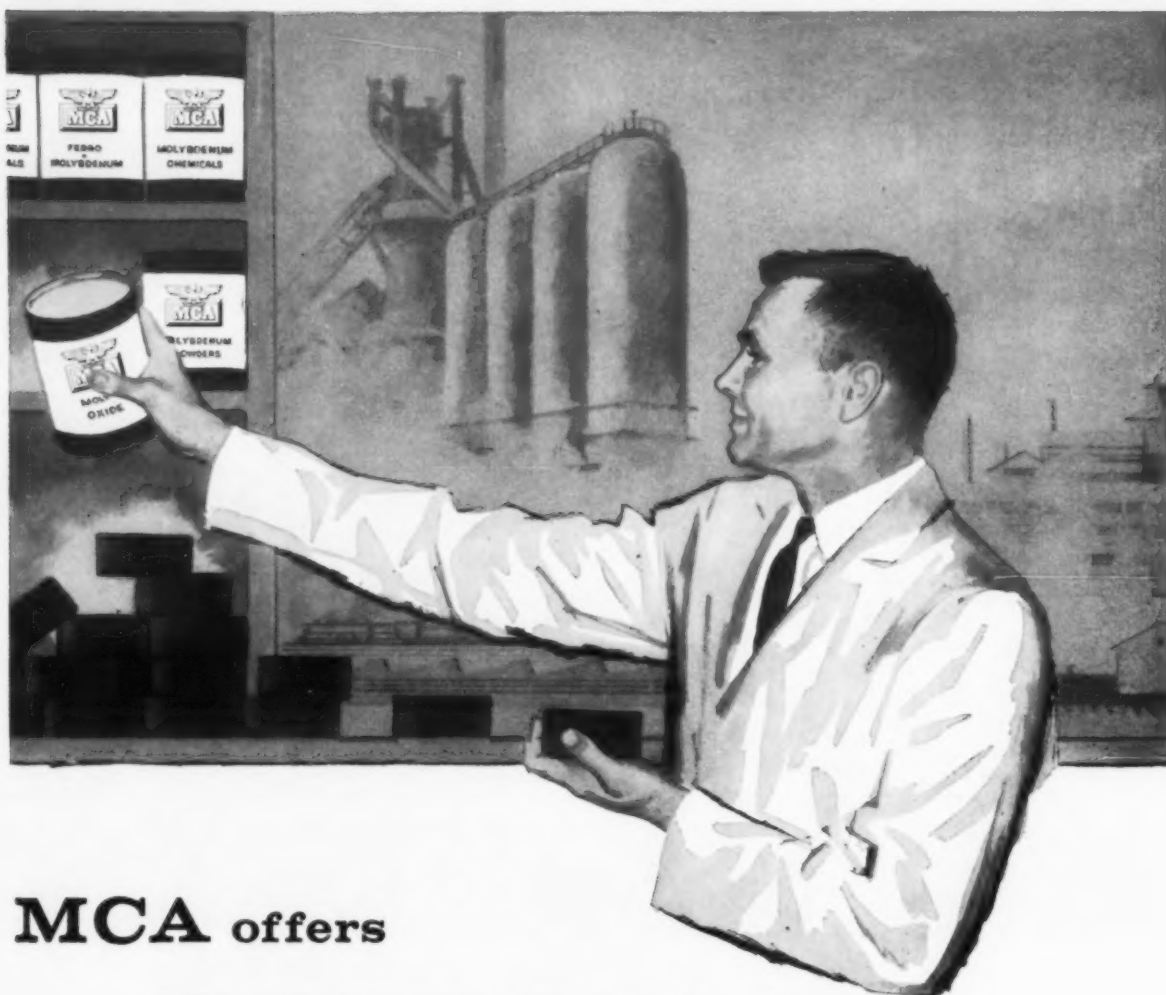
Experienced melters have also discovered that **GLC GRAPHITE ELECTRODES** with "weld-strength" Unitrode® nipples help make better steels at lower cost.

FREE—This illustration of one of the skills employed by the men who make the metals has been handsomely reproduced with no advertising text. We will be pleased to send you one of these reproductions with our compliments. Simply write to Dept. C-11.



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Molybdenum in all its forms

Molybdenum is widely accepted in the iron and steel industry, because it imparts improvements in physical properties at costs that may be economically justified. Such properties are effective both in economy of production and user benefits. In high speed steels, automotive steels, in aircraft and missile steels, molybdenum by MCA performs to meet designer's requirements.

This expanding use of molybdenum has resulted in demand for various forms—chemicals, metal powder, metallic

molybdenum and molybdenum oxide. MCA offers molybdenum in all commercial forms for easy and practical application in the mill. In addition, MCA's technical knowledge is unsurpassed and is available to the iron and steel maker upon request, free of charge.

When you have a metallurgy problem that molybdenum might solve, think first of MCA. When you need molybdenum in any form or quantity, MCA has it available for your use in iron and steel improvement.

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Subsidiary: Cleveland-Tungsten, Inc., Cleveland
Plants: Washington, Pa., York, Pa.



R. M. Underwood is the new northwest district manager, coming to the company from the Crane Hoist & Engineering Co., Bell, Calif.

T. S. McCrory . . . has been appointed regional manager of the west coast sales, Wheelabrator Corp., Mishawaka, Ind. His headquarters will be in Los Angeles.

D. E. Matthieu . . . has been appointed vice-president of Wysong & Miles Foundry, Inc., Greensboro, N. C. Matthieu's previous position was manager of foundries, Richmond Foundry & Mfg. Co., Inc. He is chairman of AFS, Piedmont Chapter.

A. A. Milkie . . . is now manager, Chicago district, Pangborn Corp., Hagerstown, Md.

C. W. Lueders, Jr. . . . has recently been appointed sales and service engineer, Herman Pneumatic Machine Co., Pittsburgh, Pa., manufacturers of foundry molding machines.

R. D. Dodge . . . formerly sales representative for Archer-Daniels-Midland Co., Federal Foundry Supply Div., Cleveland, is now with Core-Lube, Inc., Danville, Ill.

T. W. Teetor . . . general superintendent, Federal Malleable Co., West Allis, Wis., is leaving the company to accept a fellowship with the school of Industrial Management at Purdue University, Lafayette, Ind. He will become a candidate for a Master of Science Degree in Industrial Management. Teetor is a member, AFS Wisconsin Chapter.

Gordon Paul . . . is the new works manager, Foundry Div., Hansell-Elcock Co., Chicago. He was formerly manager, Sterling Foundry, Div. of Warner & Swasey Co., Wellington, Ohio.

J. S. Fullerton . . . has left Canadian Car (Pacific) Ltd., Vancouver British Columbia, and opened his own business, Fullerton Pattern Shop, located in that city.

R. W. Crannell . . . president, Lehigh Foundries Co., Div., Lehigh, Inc., Easton, Pa., was elected president, Malleable Founders' Society.

C. D. Rocca . . . Sierra Foundry Supply Co., San Gabriel, Cal., has been appointed sales manager.

S. S. Atwood . . . was approved by the Regents as dean of University of Michigan College of Engineering. He served as acting dean following the

death of **Dean G. G. Brown**. In addition to his appointment he received approval to proceed with plans to appoint one or more associate deans in addition to the present staff.

J. K. Schultz . . . was selected to serve as Philadelphia district manager of Pangborn Corp., Hagerstown,



J. K. Schultz

Md. He will direct over-all sales activities and field engineering services from Jenkintown, Pa.

R. K. Unsworth . . . formerly with Shalco Engineering Corp., is now a manufacturers' representative in Redwood City, Calif. He is a member of AFS Northern California Chapter.

C. F. Krehbiel . . . is the new Western sales manager for Ainsworth-Precision Castings Co., Detroit. A veteran of 22 years in non-ferrous castings, he was previously sales engineer with Doehler-Jarvis.

W. V. Compton . . . is now manager of La Porte Foundry Co., Inc., La Porte, Ind. Formerly, Compton served as foundry superintendent with Josam Products Corp. He is a member of AFS Michiana Chapter.

L. J. DeFazio and **R. A. Mathison** . . . The Hamilton Foundry & Machine Co., Hamilton, Ohio, have been promoted to supervisory positions. DeFazio is the supervisor of industrial engineering and Mathison general foundry foreman.

Seymour Becker . . . has been appointed Arcair Co., Lancaster, Ohio, representative for the New England States.

Dr. W. L. Fink . . . chief of Alcoa Research Laboratories' physical metallurgy division, Pittsburgh, Pa., since 1943 has been promoted to the newly created position of scientific coordinator. Rapid growth and diversification of this division has made it necessary to establish an additional unit to be known as fabricating metal-

ABC FOUNDRY COKE

—a product of 38 years of specialized experience and research

ABC Foundry Coke was produced for the first time in 1920. It was good coke then. It is a far better coke today — unsurpassed for efficient cupola results by any coke made anywhere.

Over the years, ABC has upgraded consistently the calibre of its coke. Its present-day superior standard of uniform quality is a combination of:

- CUMULATIVE EXPERIENCE** for which there is no substitute.
- SCIENTIFIC BLENDING OF SPECIALLY PREPARED COKING COALS.**
- MODERN PLANT FACILITIES** which have been constantly improved and expanded.
- RIGID LABORATORY CONTROLS AND CHECKS** of all materials used in coke production.
- CUPOLA TESTING** to forecast coke performance.
- CAREFUL SCREENING** to insure correct sizing for any cupola operation.
- SKILLED PERSONNEL** which includes highly trained technologists, chemists, engineers, metallurgists and research workers.

Whatever the requirements of your operation, you will find the right size . . . the right type of ABC Foundry Coke to give you the very best melting performance. Your inquiries are invited.

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General Sales Office: First National Building, Birmingham, Alabama

GREAT LAKES STEEL COMPANY, Division of EDWARDS COKE & POWDER SUPPLY CO., Inc.;
THE HANSON AND CO. COMPANY, Elizabeth; KRECHNER, MARSHALL AND COMPANY, Pittsburgh;
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Photo Courtesy of
Chain Belt Company
Milwaukee, Wisconsin

MULTIPLY PRODUCTION
with
Sterling
**MULTIPLE STACK
MOLDING FLASKS**

Multiple stack molding with Sterling Foundry Flasks is helping the Chain Belt Company increase production way beyond expectations. And efficient continuity of operations paves way for top quality results and greater economies.

**speeds casting output • cuts costs •
saves valuable plant area**

Their unique ability to withstand tremendous pressures makes Sterling Foundry Flasks ideal for modern stack molding. In spite of the increased amount of hot metal in relation to total flask volume in stack molding (which generates great heat and gas pressure) Sterling's special rolled steel channel and reinforcing ribs . . . with tensile strength over 60,000 p.s.i. . . prevent distortion and misalignment of the stacked molds. Sterling Flasks retain rigidity and accuracy under constant production pressure. For long runs of small or shallow castings, Sterling multiple stack molding MULTIPLIES profits. See your Sterling representative.



SQUEEZE-IN BOTTOM BOARD
made from high tensile aluminum to insure greater on-the-job ease in handling. Weighs only 1/2 as much as steel. **PERMALUM** Bottom-Boards provide complete resistance to corrosion. All sizes available, with or without perforations. Write for bulletin.

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Subsidiary Company: **STERLING FOUNDRY SPECIALTIES LTD.**
LONDON • BEDFORD • JARROW-on-TYNE, ENGLAND

FOR NEARLY HALF A CENTURY manufacturers of **FOUNDRY EQUIPMENT**

lurgy division. **H. Y. Hunsicker** will be chief of the remaining portion—physical metallurgical division. **J. A. Nock, Jr.**, will be chief of fabricating metallurgy division and **J. P. Lyle** will become assistant chief.

G. M. Seib . . . has been appointed vice-president of Oakite Products, Inc., New York, and **E. H. Steif** succeeds him as secretary.

H. J. Calnen . . . has been named Eastern representative of Chas. Taylor Sons Co., Cincinnati.

G. G. Mead . . . has been appointed chief industrial engineer and **D. G. Hazlett** product engineer by Vulcan Mold & Iron Co.

Tom Brownell . . . has accepted a position with the Griffin Foundry & Mfg. Co., Rome, Ga.

W. D. Bailey, Jr. . . . was elected to the board of directors of Esco Limited, Vancouver, B. C., Canada. He is manager of the Foundry Division at Port Coquitlam and recently served as West Coast director of the Steel Founders' Society of America.

Dr. W. H. Schuette . . . Dow Chemical Co., Midland, Mich., was elected a company vice president by the board of directors. He will continue his duties as division general manager.

D. G. Johnson, Jr. . . . was recently promoted to assistant general sales manager of Electric Steel Foundry Co., Portland, Ore.

W. I. Dieters . . . is the new process control manager for Precision Castparts Corp., Portland, Ore.

H. S. Goodwin . . . has become a sales engineer for Plibrico Sales & Service Co., Norfolk, Va. He was formerly with Mexico Refractories Co.

T. L. Thomas, III, . . . was appointed vice-president of General Smelting Co., Philadelphia. He will assume new duties immediately.

B. L. Bevis . . . has accepted the position of Superintendent, East St. Louis Castings Co., East St. Louis, Ill. Bevis is Chairman of the AFS Education Division as was formerly, training supervisor, Caterpillar Tractor Co., Peoria, Ill.

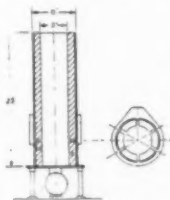
D. B. Barron . . . formerly with Crawford Steel Foundry Co. has accepted a position with Fundidera de Acero Tepeyec, Santa Clara Estado de Mexico.

Ohio Student Operates Cupola

A miniature operating cupola capable of melting iron proved to be the winning entry of Edward Frick at the Science Fair sponsored by the Engineering Society of Cincinnati. Frick, Hamilton (Ohio) High School senior, was awarded a \$50 savings bond as first prize in the field of engineering for his 5-in. diameter cupola and related castings exhibit shown in the picture below.



His first experiments were limited to low-melting point metals such as solder and lead. Last year he built a gas-fired crucible-type furnace which was used successfully in melting aluminum. Following the Exhibit theme he built a device capable of melting iron in quantities large enough to be useful. Arc-furnace equipment was too costly so Frick used a cupola-type instrument. With the help of local foundrymen, he came up with the specifications shown in the illustration. The first time the cupola was fired it successfully melted iron before inexperience caused it to "freeze up", necessitating a re-line job. The remainder of his exhibit consisted of patterns, drawings and sample aluminum castings which demonstrated the complete process by which castings are made.



5" CUPOLA

Seventh Science Award Exhibit, University Field House, was co-sponsored by the Engineering Society of Cincinnati and the Cincinnati Enquirer and presented with the cooperation of the Technical and Scientific Societies' Council of Cincinnati.

It is held yearly to stimulate interest in science and engineering.

Frick has entered the Mechanical Engineering Dept. of the University of Cincinnati where he plans to major in foundry work.

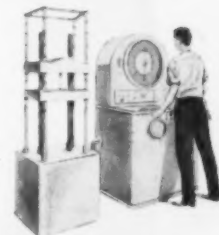


"I always get good ductility using calcium alloys"

Steel foundries employing aluminum deoxidation obtain improved properties by making a supplementary addition of calcium-silicon or calcium-manganese-silicon to the ladle. These calcium alloys help obtain consistently good ductility in the tensile test. Many foundries also report improved fluidity with the calcium additions. Generally 3 to 5 lbs. of alloy per ton insure effective treatment.

ELECTRO METALLURGICAL COMPANY, Division of Union Carbide Corporation, 30 East 42nd St., New York 17, N. Y.

Contact your
ELECTROMET
representative
for further
information
on getting
improved ductility
with
calcium alloys.



Electromet
FERRO-ALLOYS AND METALS



Sure, I've been running this core room since you were in knee britches. But my boss doesn't hire whiskers; he wants performance — the right cores for the job. And the work here varies all over the lot. I stay right up to date on binders, processes and brands, so —

don't call me an

OLD TIMER!

We're using all three, aren't we?

LINOIL...for oil-sand cores
LIN-O-SET...for air setting
ADCOSIL...for CO₂ gas curing

This is a jobbing foundry. We sell custom castings at a profit — some involve intricate high production core work; others call for massive chunk cores. Our production dictates what cores are needed, and it's up to me to have the right cores on the floor at the right time.

That means flexibility, and in our case, three processes: conventional, air setting, and CO₂.

Back when I was an apprentice core maker, LINOIL was the oil we depended on. I still count on LINOIL for our baked cores because I get consistent quality and uniformity — cores are strong and hard and they shake out like sugar. I can make a selection from a wide range of LINOILS for any type job.

LIN-O-SET came along just in time to save us time and money in the fabrication of large cores. Our chunk cores now take half as much time to make and a third less time to bake. Helps offset increased costs. Cuts rodding and cleaning in half, too!

ADCOSIL, ADM's CO₂ core binder, works like magic to cure intricate cores instantly and thoroughly. Ideal for blown cores. ADCOSIL with color indicator tells us where to place core vents and helps us rig new boxes and patterns.

I'm no OLD TIMER...

We're up to date, boy! We buy ADM-Federal core binders for any and all processes! What's more, we buy smart... always order mixed truckloads and get lowest price, as well as reducing our freight costs.

**For Scientific
Coremaking,
I like —**



Archer Daniels Midland company

FEDERAL FOUNDRY SUPPLY DIVISION

2191 West 110th Street • Cleveland 2, Ohio

Salute to Safety

An encouraging 20 per cent decrease in accident frequency rate among foundries during the past year was revealed in the results of the annual Safety Contest conducted by the National Safety Council. The accident frequency rate,* however, was 8.70, almost the highest in the metal industries (only heavy fabricating plants surpassed it with 8.73). Steel mills, incidentally, have a commendable 2.34 accident frequency rate.

Competition among foundries was divided into three size groups:

Group A — foundries operating more than 520,000 man-hours during period July through Oct. 1957

Group B — foundries operating 202,000 to 519,999 man-hours during period July through Oct. 1957

Group C — foundries operating less than 202,000 man-hours during period July through Oct. 1957.

Contest year ran from July 1, 1957 to June 30, 1958. A total of 114 foundries participated in the contest on a voluntary basis.

Winners and accident rates were:

Group A —	Rate
1) Fabricast Div., GMC, Bedford, Ind.	0.50
2) American Radiator & Standard Sanitary, Louisville, Ky.	1.44
3) Johnstown Works, U. S. Steel Corp., Johnstown, Pa.	1.45
Group B —	
1) Dow Chemical Co., Bay City, Mich.	0.00
1) Erie Malleable Iron Co., Erie, Pa.	0.00
2) Blaw-Knox Co., Coraopolis, Pa.	0.98
Group C —	
1) Roll & Machine Works, U. S. Steel Corp., Canton, Ohio	0.00
1) East Texas Steel Casting Co., Longview, Texas	0.00
1) U. S. Pipe & Foundry Co., DeCoto, Calif.	0.00
1) Marshalltown Foundry, Marshalltown, Iowa	0.00
1) Ideal Foundry, Republic Steel Corp., Newton Falls, Ohio	0.00
1) Hammond Plant, Pullman Standard Car Corp., Hammond, Ind.	0.00
1) Waukesha Foundry Co., Watertown, Wis.	0.00
1) American Brake Shoe Co., Pomona, Calif.	0.00
1) Robertshaw Fulton Controls Co., Scottsdale, Pa.	0.00

All first place winners were awarded framed plaques while 2d and 3d place received certificates. The 11 foundries which tied for first place recognition with perfect safety records of "no accidents" deserve special praise. A "0.00" accident-frequency record for an entire year does not come easy.

Accident-frequency rate in foundries seems to increase as the size of foundry decreases. Those in Group A were the largest foundries and had an average accident-frequency rate of only 8.70. Group B foundries averaged 11.9 and



Group C hit the high with 12.38. In spite of this high average, 9 foundries in Group C had perfect records. This anomaly might be explained by the fact that larger foundries can afford to hire full-time safety engineers, can spend more money on educating workers and can bear the expense of devices for insuring a safe working environment.

Certificates of achievement went to 19 other foundries for reducing injury-frequency rate at least 15 per cent below their previous three-year average. First, second and third place winners in the safety contest were not eligible to receive achievement awards (although they may have qualified).

Foundries so honored were:

GROUP A —

General Steel Castings Corp., Eddystone, Pa.; Blaw-Knox Co., Foundry & Mill Machinery Div., East Chicago, Ind.; Albion Malleable Iron Co., Albion, Mich.; Lynchburg Foundry Co., Lynchburg, Va.; Shenango Furnace Co., Sharpesville, Pa.

GROUP B —

Los Angeles Steel Casting Co., Los Angeles; James B. Clow & Sons, Inc., Birmingham, Ala.; American Radiator & Standard Sanitary Corp., Bayonne, N. J.; American-Standard Corp., Richmond, Calif.; Kensington Steel Co., Chicago; Lynchburg Foundry Co., Radford, Va.; John Deere Malleable Works, East Moline, Ill.

GROUP C —

Burnside Steel Foundry Co., Chicago; Sibley Machine & Foundry Corp., (W. Eckman St.) South Bend, Ind.; Northern Malleable Iron Co., Minneapolis; Pacific States Cast Iron Pipe Co., Provo, Utah; American Brake Shoe Co., Electro-Alloys Div., Elyria, Ohio; Grede Foundries, Inc., Liberty Div., Milwaukee; Minneapolis Electric Steel Castings Co., Minneapolis.

*Accident frequency rate is determined by multiplying the number of reportable injuries by one million and dividing by the total man-hours worked in the industry (for the national average) or in the individual foundry (for each plant rate).



Four-man foundry does BIG job

The Rhude Media Co. of Marble, Minn., makes a fine iron powder for mines practicing beneficiation (reclaiming low-grade iron ore). Until recently, Rhude bought the needed iron in ingots. Now a new foundry enables the company to melt its own iron from scrap, using a Whiting #7 Cupola, U-Ladle, and Trambeam Charging System with two buckets.

The two-bucket cycle permits uninterrupted charging, assures the steady, high output needed to satisfy customers. Thanks to efficient Whiting

equipment, only four men are needed in the melting department to keep the foundry operating at full blast... on a profitable basis.

SEND FOR "METALWORKING PROFILES"

the big, colorful new booklet showing performance reports of Whiting products on the job... bringing new efficiency and economy to foundry operations. Ask for booklet 242. Whiting Corporation, 15628 Lathrop Avenue, Harvey, Illinois



Member of the Foundry Equipment Manufacturers Association.

87 OF AMERICA'S "FIRST HUNDRED" CORPORATIONS ARE WHITING CUSTOMERS

WHITING



MANUFACTURERS OF CRANES; TRAMBEAM HANDLING SYSTEMS; TRACKMOBILES; FOUNDRY, RAILROAD, AND CHEMICAL PROCESSING EQUIPMENT

Circle No. 250, Page 7-8

America's leader in metal abrasives . . .



For over 70 years, Pittsburgh Crushed Steel Company has consistently led the metal abrasives industry—has led in research and product development—has led in the improvement of production methods—and has led in sales and service facilities as well as in distribution facilities!

The results have been better metal abrasives for lower cleaning costs in foundries, forge plants, and steel and metal working plants in general!

Today, through 13 distributing points and 33 sales-service offices, we supply all sizes and types of metal abrasives, iron and steel, for every type of blast-cleaning equipment and for every blast-cleaning requirement!

Our engineering, sales, and service representatives are always available to you in connection with your blast-cleaning needs.

PITTSBURGH CRUSHED STEEL COMPANY

Arsenal Sta. Pittsburgh (1), Pa.

Subsidiaries: Globe Steel Abrasive Co., Mansfield, Ohio
Steel Shot Producers, Arsenal Sta. Pittsburgh, Pa.

**MALLEABRASIVE • TRU-STEEL SHOT • SAMSON SHOT
ANGULAR SHOT**



Circle No. 251, Page 7-8



dietrich's corner

by h. f. dietrich



Foundry Animals

We are all more or less familiar with the Bull O' the Woods, the Sand Rat, and the Iron Hog; but I think some other animals found in the foundry are equally interesting. I mean the four footed variety that can lay legitimate claim to membership in the animal kingdom.

Before the days of Decon, rats were common to most foundries, large and small. The number of rats that were supported by a foundry always amazed me. Once in a while the rat population would produce a bold and enterprising character who learned to get his living the easy way. Such a rat was Black Bart.

Bart, through some instinct known only to rats, made friends with Tony, our dry-floorman. Each noon, Tony would use his stiletto to cut chunks from his whole loaf and share his black bread, salami, and dago red wine with Bart. The good food produced a rat of unusual size—and a garlic breath, no doubt. Protected and fed by Tony, Bart became bold and arrogant. This and his natural ratty nature eventually led to his downfall.

Swede Larson was a floor molder who didn't share Tony's love for rats; but having a healthy respect for Tony's stiletto, he tolerated Bart as long as the rat kept at a distance. One day Bart decided to vary his Italian diet with a little Swedish cooking. He grabbed Swede's lunch bucket and began to back toward the sand muller platform where he stored his collection of stolen tools, shoes, belts and other items which had been left unguarded.

Swede was wedging chucks at the time, and was swinging a hammer that might have belonged to Thor himself. When Swede saw Bart he let out a howl that could have been heard all over the north end of Milwaukee. Without straightening up, he let go of the sledge and pinned Bart and the lunch bucket against the

muller foundation. Bart splashed when he hit.

By the time I got to the main bay, Swede and Tony were engaged in a bilingual display of profanity that was educational. Neither could understand the words of the other, but Bart was receiving a eulogy befitting a rat.

Another animal character I met personally was a maternally inclined civet cat. For those who don't know about civet cats, they are sort of a small sized, confused skunk. This particular civet made its home in a foundry abandoned after the war. She had the run of the place because no one with good judgement consciously argues the right of way with a skunk. By the time we were ready to take the wraps off of this foundry and get into production, mamma civet had produced a litter of kits in a skip hoist.

A consultation was held about how to dispose of the litter. Someone volunteered the information that the cat could be led out of the shop on a leash. As long as it didn't turn around, the heavy artillery would be inactive. My foremen were intelligent. We couldn't find anyone stupid enough to tie a leash on the cat. So, we waited until mamma left the shop to go mouse hunting. Then, with a track shovel, we gathered the kits and threw them into the flask yard.

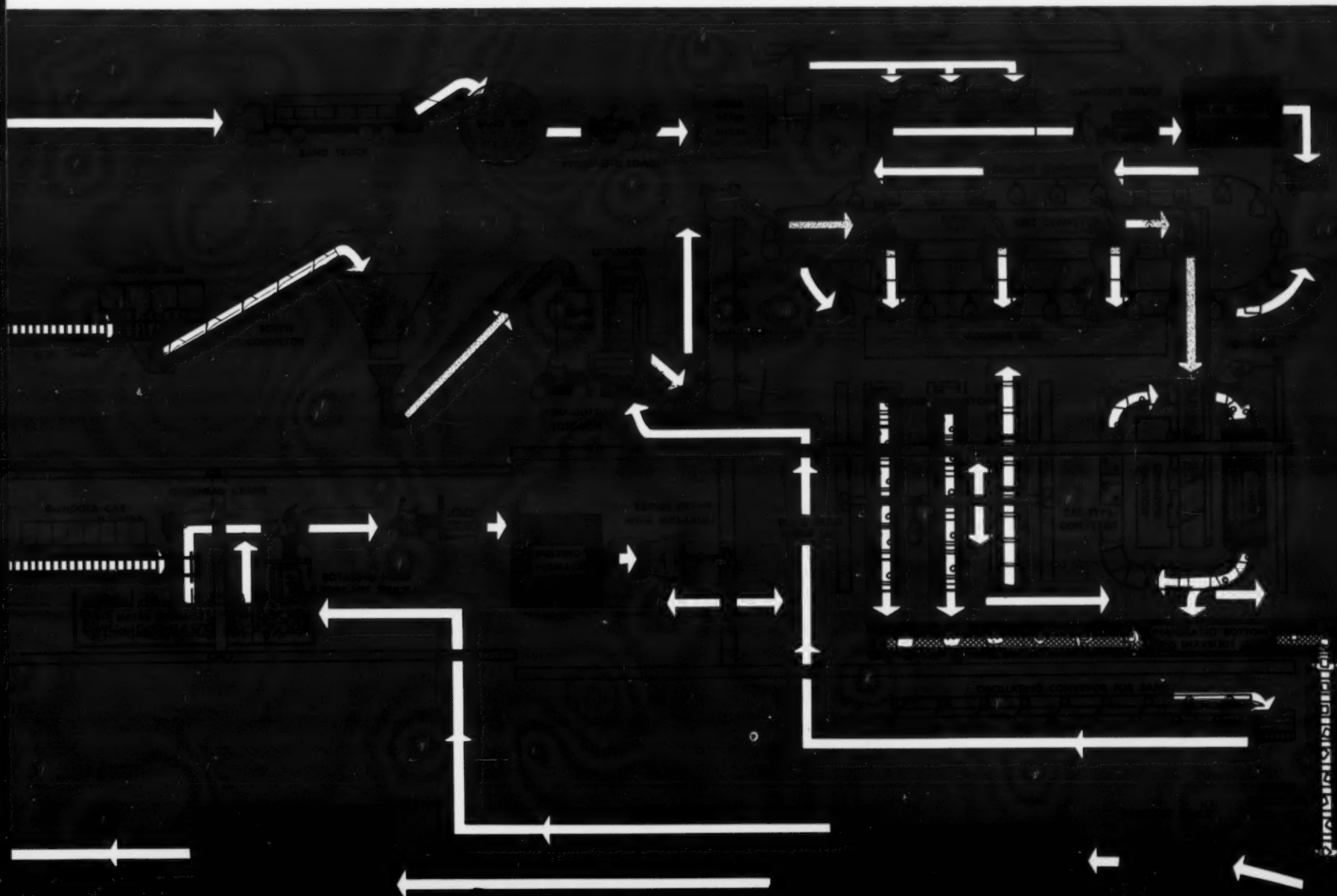
The next day, they were back in the skip hoist. Three times we hauled that litter to the flask yard. Three times the cat hauled them back. We finally placed a plank in the hoist to allow the kits to climb out when they were ready, and went about the business of getting the rest of the shop ready for production. Mamma civet finally decided all this activity would give her brood inhibitions. One night she was seen with nose and tail held high, leading them from the building. She had made her point in the argument. You can't push a skunk family around.

Foundry Materials on the move...

A MODERN CASTINGS staff-prepared study of materials handling problems facing the metalcasting industry today

Detailed movements of foundry materials are traced through five representative jobbing foundries casting: (1) gray iron, (2) malleable iron, (3) steel, (4) bronze, (5) aluminum.

This study is concluded with a Panorama of Methods to save time . . labor . . money whenever materials are on the move.





Foundry Materials on the move...



Bridge crane moves charge materials by clamshell bucket or electromagnet.



Car-type conveyors are backbone of molding lines. Air hoist on jib crane shifts weights.

Overhead belt moves molding sand. Attendant lowers plow to spill sand into hopper needing re-fill.



Belt moves cores from coremakers to core oven tender who puts cores and pallet in oven.



Roller conveyor moves cores from the oven to core assembly and storage areas. Pallet will continue down conveyor to be stored for reuse near core benches.



Bull ladles and the pouring ladles moving over trackage of monorail system can carry 50 tons of metal in 8-hour shift. Ladles are raised and moved by manual effort. Two cupolas and two mechanized molding lines are served with this system.

Manpower is employed to move cores to the molding stations.



.. in the gray iron foundry of
NATIONAL GREY IRON DIV.
Belvidere, Illinois



Bottom-dumping tote box is used to haul waste sand from plant into storage yard.



Bottom-dumping tote box carried to grinder by lift truck.



Last move in castings' trip to market is by fork lift into waiting trailer truck.



Belt conveyor serves as sorting table and deposits scrap in tote boxes.

Shakeout apron conveyor moves castings from shakeout to the continuous abrasive blast cleaning machine. Gates and risers are transported to scrap storage yard in tote boxes.



● An old plant, an old company, a thoroughly modern approach to materials handling—this is the story of the National Grey Iron Div., Moline Malleable Iron Co., Belvidere, Ill.

The plant was built in 1900 as a part of the National Sewing Machine Co. and was mechanized in 1948. Moline Malleable, a firm that has been in business over 50 years, purchased the plant in 1954 and operates it as a jobbing foundry.

Agricultural, stove and home appliance parts are the staple items of production. Castings run to about 20 lb with the average about 5 lb. Thirty tons of castings are produced daily by 101 employees.

Only three operations in the plant require manual handling of the castings: sorting, grinding and final inspection. The use of pallet trucks and fork-lift trucks combined with the use of bottom-dumping tote boxes minimizes even the amount of manual effort required for these operations. The pictorial treatment on these pages illustrates the flow of material through the plant and all basic handling techniques employed.

The production flow diagram illustrates the ability of foundry equipment producers and their plant layout engineers to create an efficient, modern mechanized operation within the confines of an old, existing building. The layout of the National Grey Iron plant has proved flexible enough to permit the introduction of a diaphragm molding operation.

The fleet of industrial trucks in use at National includes four fork-lift trucks: two 3000-lb capacity units and two 2000-lb capacity units. The older, 2000-lb capacity trucks are used as standbys for the larger equipment which is in constant operation. The larger, more versatile trucks were put into service by National, even though it required that floors in some areas of the plant be strengthened.

At National, materials handling techniques are considered when management is preparing prices for bids on new castings. Management philosophy is that competitive success hinges on selecting jobs of size and conformation to be handled with minimum breakage and maximum speed by the plant's equipment and production techniques.

KISHWAUKEE RIVER

Foundry Materials on the move...

.. in the malleable foundry of
AUTO SPECIALTIES MFG. CO.
St. Joseph, Mich.



Special bin stores segregated charge metal which is handled by magnet on bridge crane.



Hot-metal transfer car speeds iron from electric furnace by monorail.

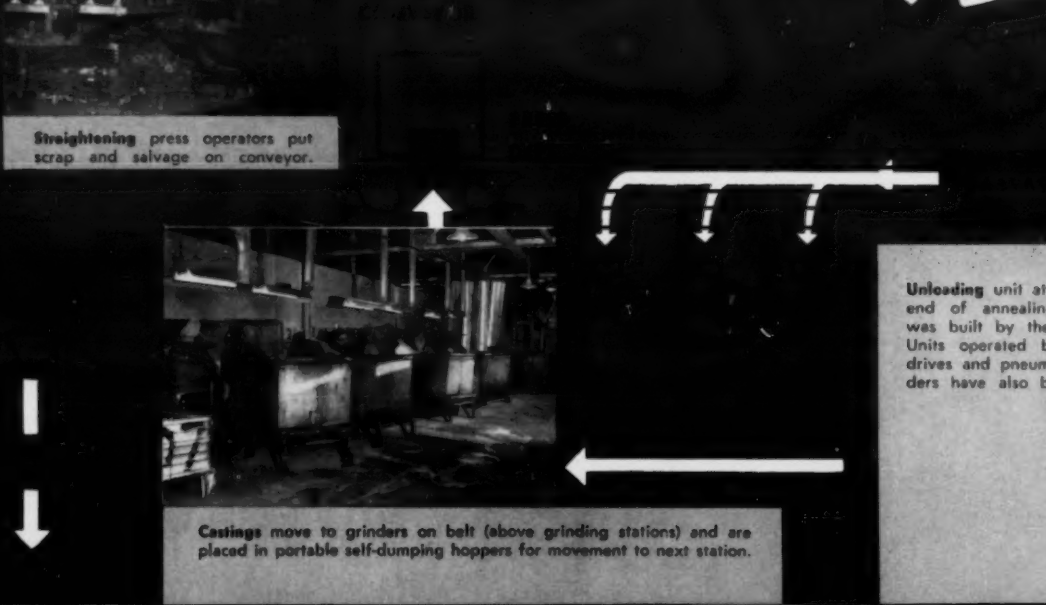


Heat treat furnaces are loaded by overhead traveling hoist.

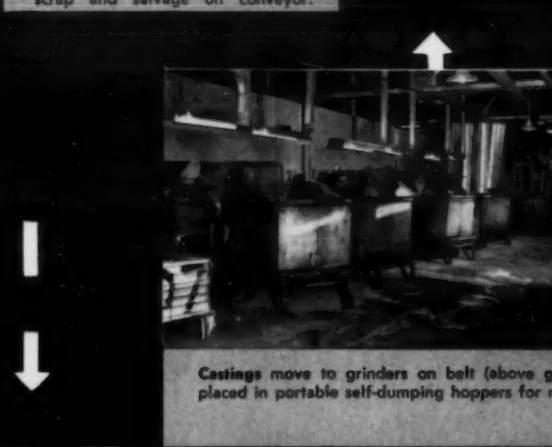


Pendulum-type conveyor hauls flasks and molds for first molding line.

Tilting cradle empties castings from furnace container into hoppers for movement to shipping.

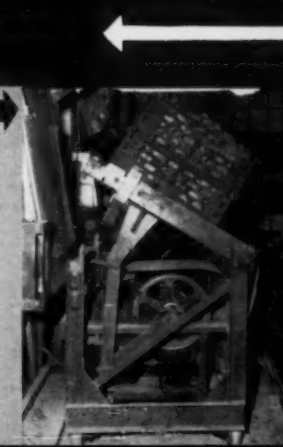


Strengthening press operators put scrap and salvage on conveyor.



Castings move to grinders on belt (above grinding stations) and are placed in portable self-dumping hoppers for movement to next station.

Unloading unit at discharge end of annealing furnace was built by the foundry. Units operated by electric drives and pneumatic cylinders have also been built.





Mass production of castings requires equipment and techniques able to handle supplies and raw materials in massive quantities.

The Auto Specialties Manufacturing Co. malleable plant at St. Joseph, Mich. is a mass production foundry with a massive materials handling problem: 1300 car loads of fuel, supplies and raw material to be unloaded and moved through the production processes each year.

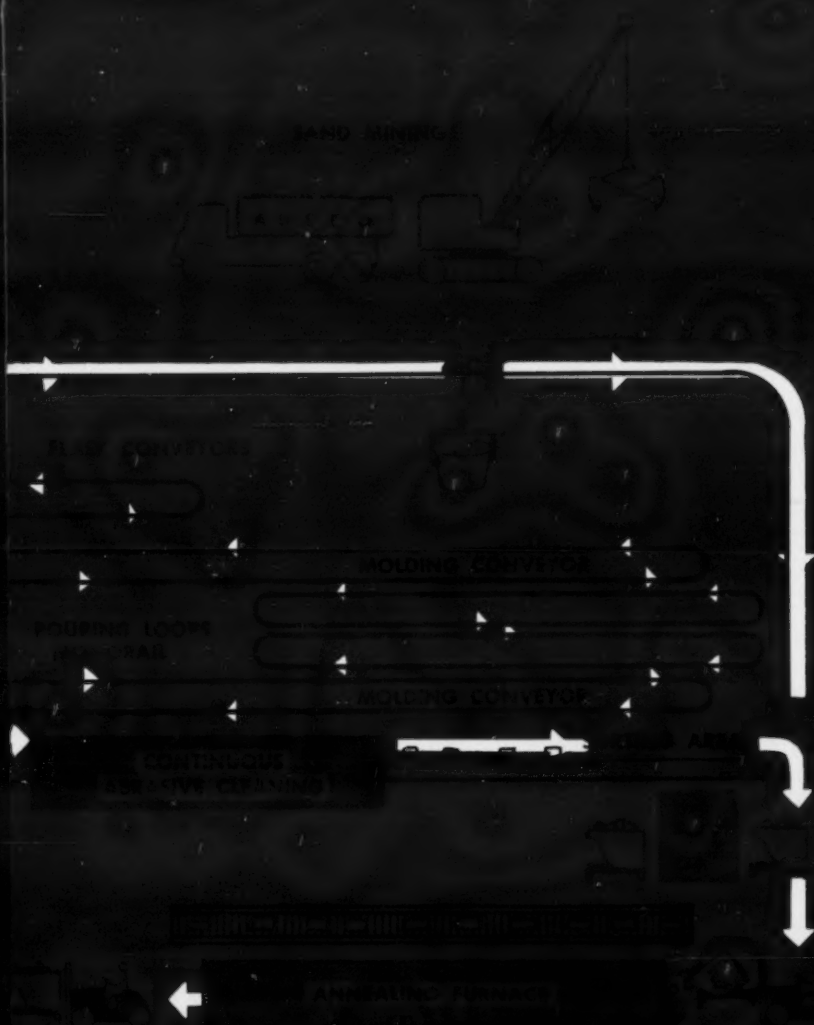
Primarily devoted to production of auto parts, the plant melts 400 tons of metal daily to produce castings to fill orders ranging from runs of 1000 to 100,000 castings. The company's own machine shops consume 6 per cent of this production; the remaining 94 per cent is sold on a jobbing basis. From 200 to 300 patterns will be in the plant at any time.

The flow of production through the plant, and the basic material handling methods used are illustrated by the pictorial treatment on the pages. The special handling problems of this plant result from its volume of production and from the added heat treating operations required to produce malleable iron.

Over 1000 car loads of raw materials were brought into the plant in 1957 to satisfy the needs of the melting department. 463 cars of scrap, 250 cars of pig iron, 250 cars of coke and additional cars of limestone and refractory materials were consumed by this department.

Moving these quantities of materials through a large plant requires a fleet of special vehicles in addition to the conveyors and cranes necessary to a mechanized operation. The Auto Specialties fleet consists of the following: three platform-type industrial trucks, three self-propelled pallet trucks, 11 fork-lift trucks, three dump trucks, one flatbed truck, and one mobile yard crane with a 3/8-yard bucket.

Eight of the fork-lift trucks are used to transport the self-dumping hoppers which are an important feature of the plant's materials handling system. Mobility and ease of stacking are two features that have led to employment of 300 self-dumping hoppers at Auto Specialties. Two hundred and fifteen hoppers are used for in-process handling of castings, 70 are used to store castings and 15 are required to handle waste and scrap.



Car-type conveyors serve two molding lines. Pouring ladles are hoist controlled on mono-rail.



Sorters put castings in proper tote boxes, place scrap or salvage on pendulum conveyor.



Fork-lift truck uses self-dumping hopper to deliver castings to annealing furnace.

Roller conveyor provides storage area between two of the annealing furnaces. Conveyor runs length of the furnaces. Discharge end of furnaces is shown in this view.



“We try to have all our foundry materials shipped to us on pallets. The high cost of labor makes handling of individual sacks and boxes of materials prohibitive.” These words of R. C. Wood, president, Minneapolis Electric Steel Castings Co., typify the thinking in this company which has become aware of the fact that “next to making good castings, our biggest job in the foundry is moving materials!”

Throughout the ME foundry are examples of native ingenuity and resourcefulness used to save time, space and money with better methods for material handling. For instance, when you go into the General Stores building you are immediately impressed with the orderly appearance and efficient use of space made possible by a versatile pallet storage rack designed by employee Harlan Titterud. The height of the racks is adjusted simply by inserting different length steel pipes between top and bottom frames. Bottom of rack is designed like a pallet so fork-lift truck can stack or carry the racks with ease.

Extensive use is made of portable steel buckets which are carried by a special hydraulic hoist mounted on a truck. Buckets hold 2 cu yd and a maximum of 3 tons. They are strategically placed about the plant for collection of metal scrap, slag, sand and even snow.

As the name implies, the ME foundry produces electric furnace steel, plain carbon and low alloy. About 500 tons of castings, ranging from 1 to 6000 lb in weight, are shipped per month.

Certain studies have indicated that 200 tons of foundry materials must be moved for every ton of finished casting shipped. At this rate the ME foundry must be moving 100,000 tons of materials per month—mainly on pallets.

Wood and corrugated paper pallets arrive loaded with silica flour, sand binders, furnace brick and electrodes. Ferro-alloys arrive in box pallets. Flasks are stored and moved on pallets. One man with a lift truck can now unload a boxcar of palletized fire brick in 4 hours—compared with 80 man-hours previously.

Yes, foundry materials are on the move . . . at Minneapolis Electric—using less labor, more mechanization.



With this handy lift-cart, patterns are stored on racks 15 ft high and are still easily accessible



Practically all supplies including grinding wheels, tires, motors, etc. are stored in these versatile adjustable-height stacking pallets designed by an employee.

GENERAL
STORAGE



CORE
ROOM



CAST
OVEN

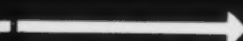


Self-propelled pallet truck transports racks of green cores to oven; delivers baked cores to molders.

PATTERN
STORAGE



ELECTRIC
FURNACE



Sand is conveyed from covered hopper-bot from freight car to portable steel bucket. Truck is rigged to hoist and haul load to storage



Fork-lift truck raises palletized sacks of binder to sand mixer



Foundry Materials on the move...

... in the steel foundry of
**MINNEAPOLIS ELECTRIC STEEL
CASTINGS CO.**
Minneapolis



Pneumatic lift on roller conveyor raises molds to pendulum conveyor which leads to shakeout area.

Trambeam monorail permits three-dimensional movement of ladle while pouring molds on pallet conveyor.



Platform truck used in cleaning department to carry castings in self-dumping hopper to skip hoist which loads blast-cleaning machine.



Profusion of hoist-equipped jib cranes in main foundry bay handle lighter work, freeing bridge crane for heavy loads.



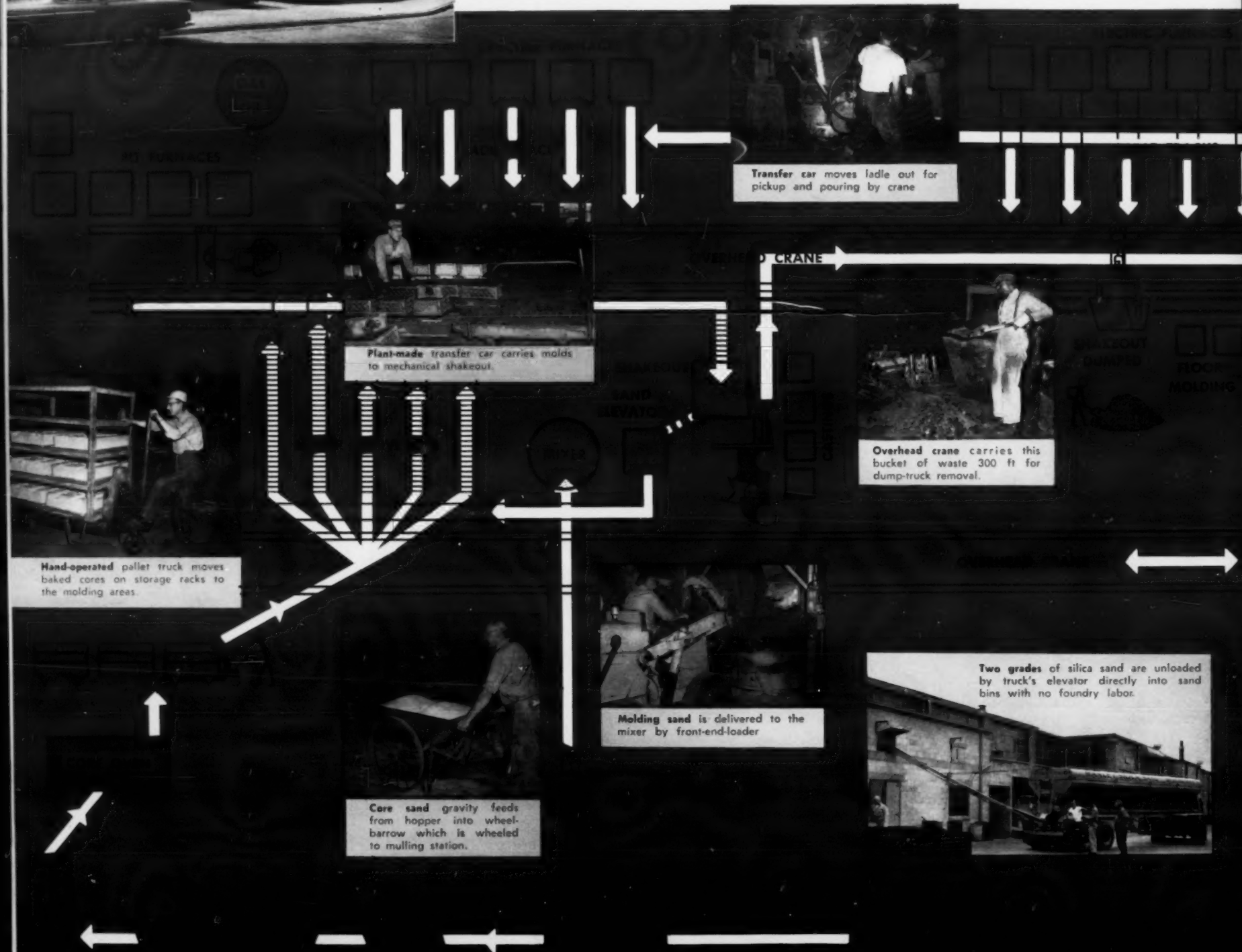
Facing sand discharges from muller into portable silo designed by foundry. Overhead bridge crane delivers silo to molding areas.

Speedy delivery of castings in Twin-City area is assured with three trucks for door-to-door service.





Foundry Materials on the move...



.. in the bronze foundry of
AMPCO METAL, INC.
Milwaukee

Tight quality control and well integrated teamwork combine to make Ampco Metal, Inc., Milwaukee, one of the nation's leading producers of copper-base alloys.

A 15,000-sq ft green sand foundry with an 8-hour day pouring capacity of 55,000 lb turns out castings in 120 different alloys weighing a few ounces to 25,000 lb.

This foundry operates primarily as a jobbing shop and therefore does not require a high degree of mechanization. However, you'll find little wasted time or effort. For example, the sand truck which delivers 90 per cent of the silica sand used at the plant keeps three 22-ton capacity bins full without expending a single man-hour of foundry labor. The truck is equipped with an elevator which runs the sand up through an opening in the plant wall directly into the bins.

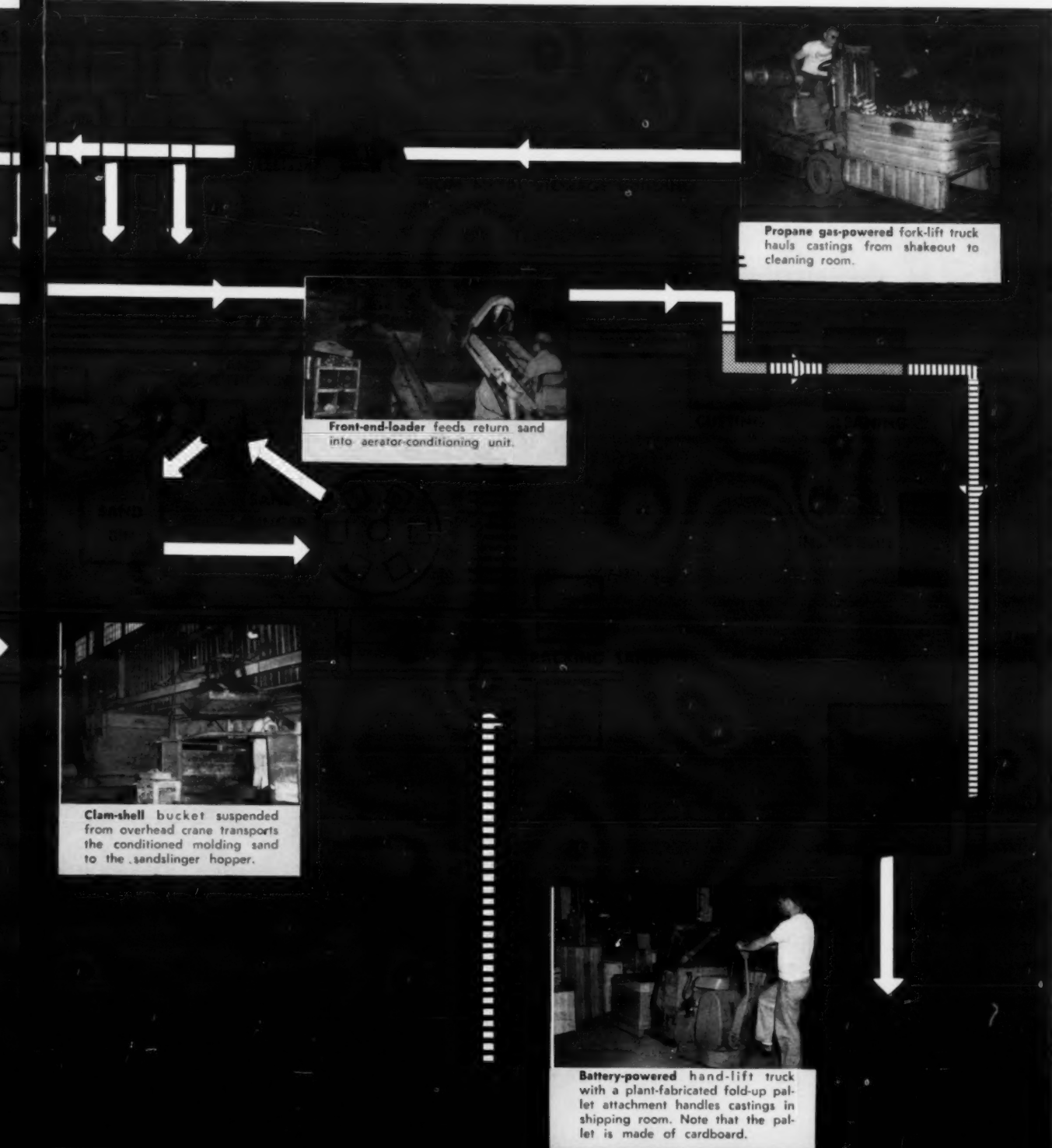
Other sand reaches the firm in railroad box cars which are unloaded within the plant by front-end-loader in six hours. The same loader also delivers this sand to the floor molding storage bin, deposits shakeout sand into an aerator-conditioner and new silica sand into the muller.

Roller conveyors support molds during pouring and facilitate their transfer to shakeout. The short-run jobbing shop operation, pouring many different grades of metal one after another on the same molding line, makes the use of continuous mold conveying impracticable.

The plant-made mold transfer car moves six to eight flasks at once to the conveyor leading to mechanical shakeout. After shakeout, castings are placed into tote boxes for removal to the cleaning room by fork-lift truck. A red, white and blue tote box denotes rush orders.

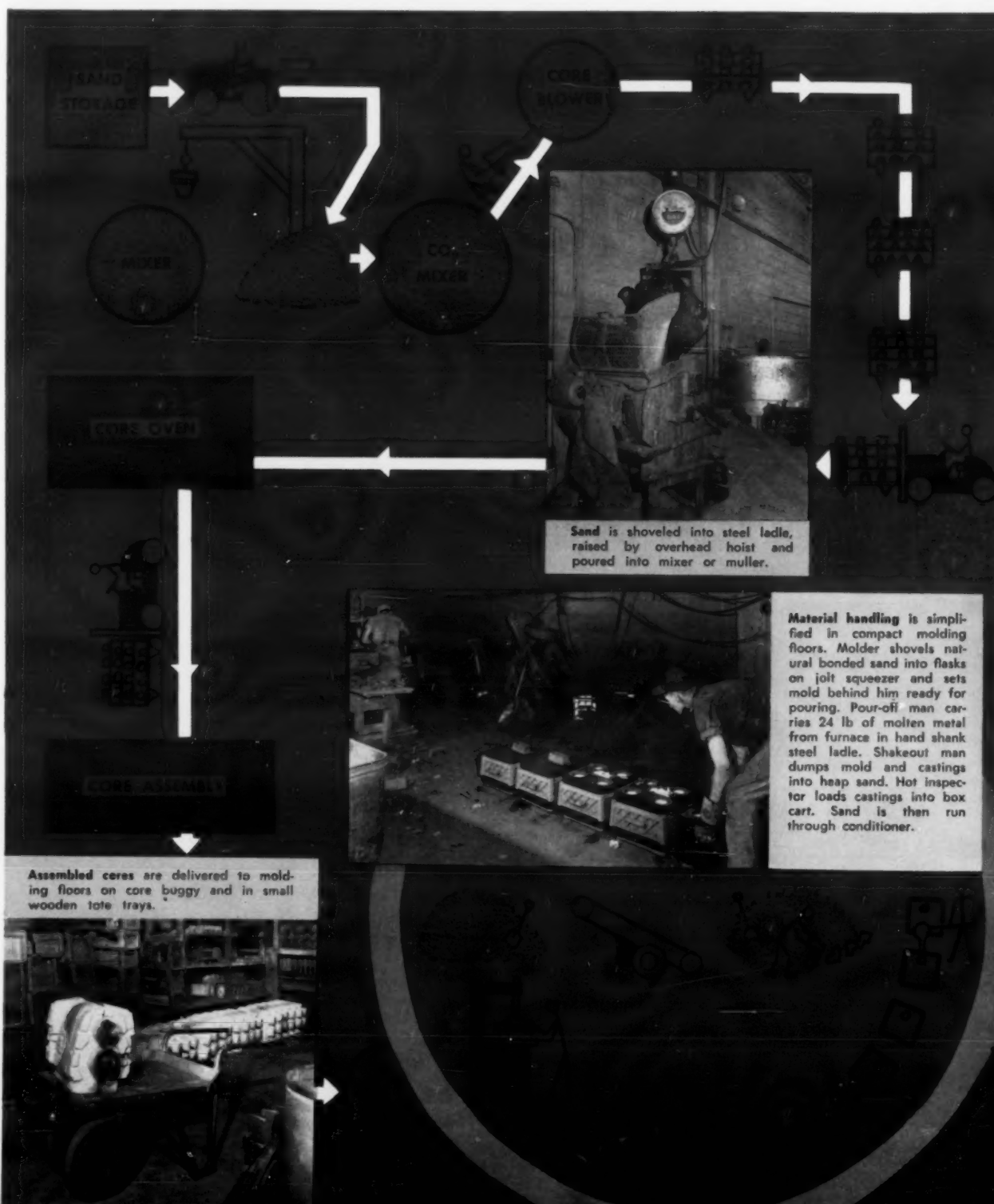
Furnace charges are brought to the green sand foundry from the metals-storage building to each of the ten gas and seven electric furnaces according to schedule sheet specifications. A fork truck places individual charges beside a prescribed furnace at the proper time.

Of the total metal processed each month by the plant, 60 per cent of the copper and all of the aluminum are received on pallets. Now, a fork-lift truck moves 300,000 lb of metal in 3-1/2 hours. Previously, it took two men four day's time.



Material handling is simplified for the customer by neatly packaging castings in burlap sacks, cardboard boxes and steel drums. Arrow Aluminum's castings are used in cars, trucks, tractors, aircraft, missiles, boats and office furniture.

Foundry Materials on the move...



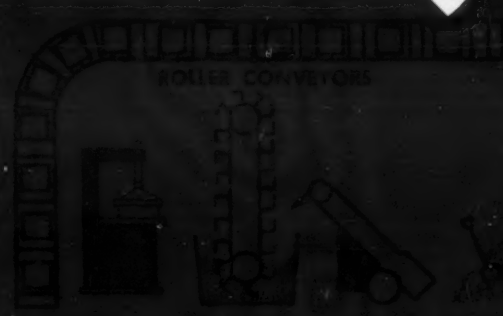
.. in the aluminum foundry of
**ARROW ALUMINUM
 CASTINGS CO.**
 Cleveland



Large molds move from molding machines on roller conveyors. Two men pour off using steel ladles held in hand shanks.



Lightweight aluminum castings lend themselves to shipping in burlap sacks, cardboard boxes and steel drums.



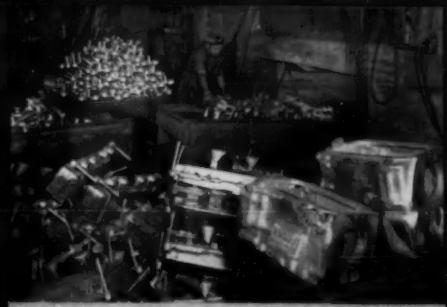
Lightweight gates and risers are easily rolled by wheelbarrow from cleaning room to storage bins opposite melting furnaces.



Shakeout sand runs through conditioner into open bin. Bucket elevator raises sand to hoppers over molders.



Box carts are pushed manually from shakeout to cleaning room. Gates and risers are cut off, thrown into wheelbarrow. Castings go into carts.



Castings move from molding floor to mechanical core knockout in four-wheel box carts.



Refuse core sand from shakeout is scooped up with front-end loader and loaded into dump truck which hauls it away.

Foundry Materials on the move...

If you want to learn more about any of these materials handling techniques, just circle the numbers on the Reader Service card, page 7-8, that correspond to the numbers on the photographs shown in this PANORAMA of METHODS.

Next to making good castings your biggest job in the foundry is MATERIAL HANDLING. With 85 per cent of indirect labor costs attributed to moving materials around within your foundry, you cannot afford to ignore this insidious profit parasite. What's more, handling costs are no respecter of size—they confront small foundries as well as the large.

Studies have indicated that foundries move as much as 200 tons of materials—metal, sand, flasks, molds—in the process of producing one ton of finished castings. All the effort that goes into this activity is completely unproductive

in that it adds absolutely nothing to the VALUE of the casting—but adds significantly to the COST. Improved material handling is the last frontier for markedly reducing production costs and increasing productivity per man-hour.

The first part of this MODERN CASTINGS study has taken you into five typical jobbing foundries. You have seen how each of these have manipulated their materials through the network of operations that blend sand and metal into the final product—a metal casting. Each foundry has selected the conveying methods that best suited their metals, production require-

ments and available plant facilities.

The second part of FOUNDRY MATERIALS ON THE MOVE . . . presents a PANORAMA OF METHODS for materials handling. The many ingenious devices manufactured to aid the foundrymen are here displayed at work in foundries all over the United States. We have tried to show as many different types of equipment performing as many different jobs as possible. Sixteen categories of equipment are shown. Study the pictures closely. Perhaps you'll see the solution to some of your problems.

Yes, the use of Materials Han-

dling Equipment in the Metalcasting Industry is BIG BUSINESS! Here are some figures that prove it.

Handling Equipment Used by Metalcasting Industry - 1955

Fork-lift trucks	6119 units
Front-end loaders	2045 units
Small power trucks	2854 units
Cranes	26,382 units
Hoists	55,336 units
Monorail conveyors	2,239,844 ft
Roller conveyors	1,004,644 ft
Belt conveyors	936,786 ft
Apron conveyors	87,084 ft
Car-type conveyors	233,661 ft
Vibrating and oscillating conveyors	56,198 ft
Bucket elevators	245,412 ft
Pneumatic conveyors	86,842 ft

SMALL POWERED TRUCKS

Small powered trucks are designed to approach the flexibility of man-powered equipment and are useful for handling heavy loads in confined areas, up grades, and over rough surfaces. Typical applications include: charging (1),

moving castings into the machine shop (2), and transporting finished castings to the shipping department (3 and 4).

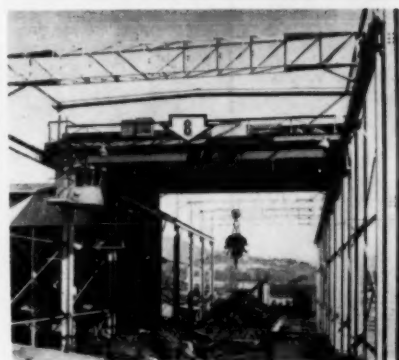
■ For descriptive literature from manufacturers of small powered trucks, circle numbers 1, 2, 3, and 4 on the Reader Service card, page 7-8.



CRANES

Boom cranes find use in yard operations where there are no overhead obstructions for operations such as (5) transporting coke. Shakeout of large castings (6) accomplished by bridge crane, which also may handle pouring operation (7). Cranes are also useful in handling scrap, (8) electromagnet eliminates shovelling, dumping. Overhead crane equipped with clam shell bucket (9) can move materials full length of plant.

■ For manufacturers' literature describing all types of cranes, circle numbers 5, 6, 7, 8 and 9 on the Reader Service card, page 7-8.



HAND OPERATED TRUCKS

Hand-operated trucks save money on short hauls; wheelbarrow (10) will carry core sand to a muller. Other two-wheeled trucks (11) may be used for metal transfer. Barrel truck (12) transfers loaded barrels of castings and other foundry materials. Mechanical lift truck (13) is useful in moving castings short distances in tote boxes. Four-wheeled platform truck (14) provides low-cost transportation of foundry materials, here, a load of cores. Hand-operated trucks also may fit into molding operations; truck in picture (15) handles servicing supplies for molding department.

■ For manufacturers' literature describing hand-operated trucks of all types, circle numbers 10, 11, 12, 13, 14 and 15 on the Reader Service card, page 7-8.



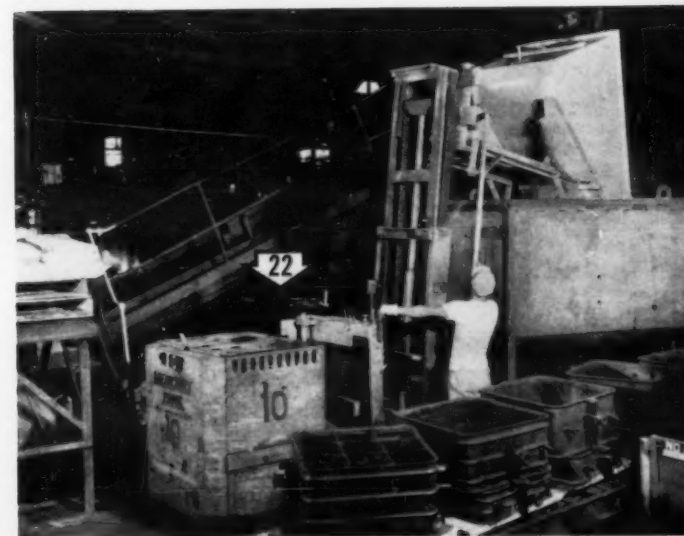
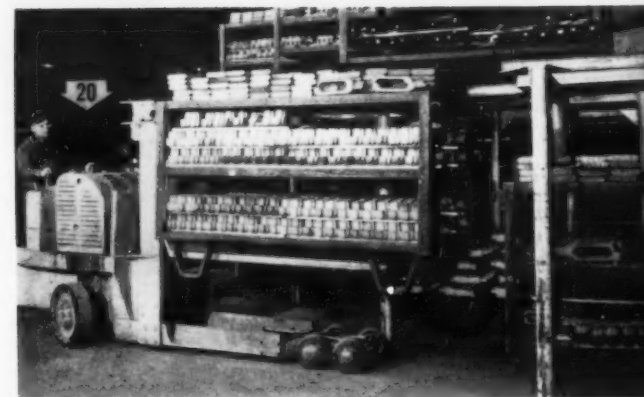
FORK-LIFT TRUCKS

Fork-lift trucks with their many attachments are among the most versatile materials handling devices used in foundries. A tilting hopper mechanism attached to a fork truck (16) can charge a furnace; a barrel dumping attachment (19) also serves this function. Castings loaded in tote boxes can be carried swiftly to cleaning and inspection areas (17). Utility of fork trucks may be widened to include metal transfer operation (18) of pushing transfer car carrying bull ladle. Complete core storage racks loaded with cores may be picked up and moved by fork truck (20).

These trucks can lift palletized materials high into the air and place them with pin-point accuracy, as with castings storage (21) and truck loading (25). Sand may be both loaded (23) and dumped (22) by special dumping attachments. Fork trucks, using their attachments, can fulfill foundry applications of hauling and dumping such wastes as used sand (24). Clean-up of gates, risers and shake-out sand; and accumulation of this material (27) is another important function.

Boom attachments (28) allow a greatly increased pallet area for the lift truck, particularly applicable in movement of lightweight materials. Although primarily designed for palletized handling, fork trucks also may pick up and move barrels of castings (26) and other materials.

■ For manufacturers' literature describing fork-lift trucks, circle numbers 16 through 28, Reader Service card, page 7-8.

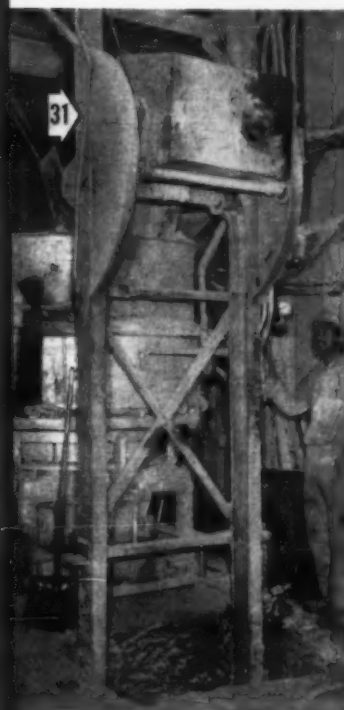




SKIP-HOISTS

● Skip hoists handle bulk materials in relatively large quantities. They supply storage bins, charge cupolas and accomplish other upper-level materials handling operations while occupying minimum space. End-over charging (29) and swivel-bucket charging (32), sand handling (31) and depositing castings for barrel finishing (30) are applications.

■ For literature describing manufacturers' skip hoists, circle numbers 29, 30, 31 and 32, Reader Service card, page 7-8.



FRONT END LOADERS

Front-end loaders are frequently used in metalcasting plants to answer the need for a flexible means of handling heavy, bulk loads. Typical foundry applications for front-end loaders are: returning used sand to muller (33), moving slag (34), moving coke (35), unloading new sand (36), and moving sand and castings from a floor molding operation to a shakeout (37).

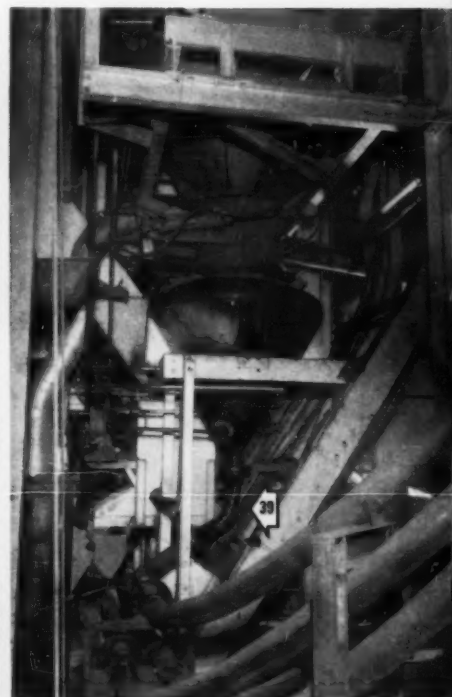
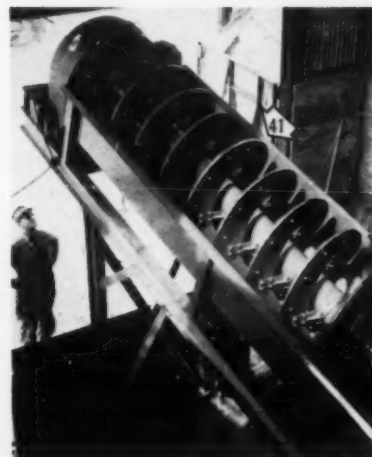
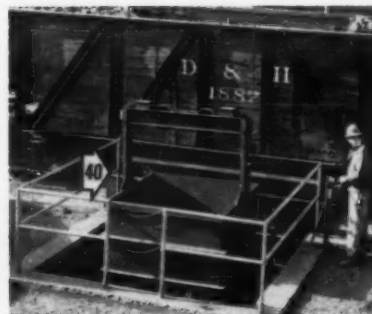
■ For descriptive literature from manufacturers of front-end loaders, circle numbers 33, 34, 35, 36, and 37 on the Reader Service card, page 7-8.



MISCELLANEOUS CONVEYORS

Five specialized handling mechanisms are: bucket conveyor (38) used to move slag; pneumatic handling systems (39) for granular bulk materials such as sand; hopper (40) which is loaded from bottom dumping car and transports material into plant; screw conveyor (41) for sand handling; apron conveyor (42) for hot materials.

■ For descriptive literature from manufacturers, circle number corresponding to photograph on Reader Service card, page 7-8.



BELT CONVEYERS

● Belt conveyors provide continuous moving of castings and foundry materials, such as cores (43) which are finished and cleaned in a continuous operation. Belts also are useful in up-hill movement of castings (44) for feeding into tumbling mill. Belt conveying of sand to molding stations (45) and from mixer (46) is efficient method.

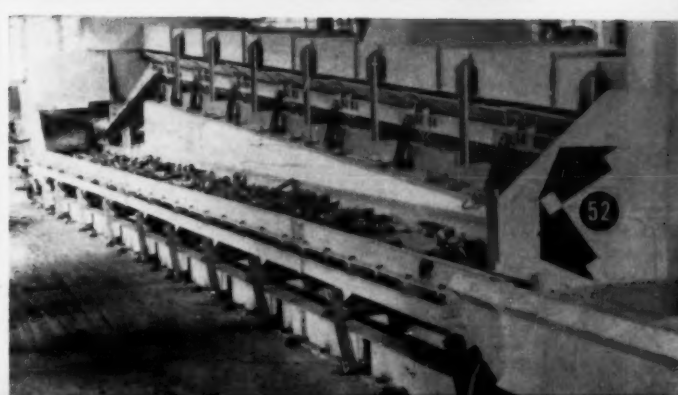
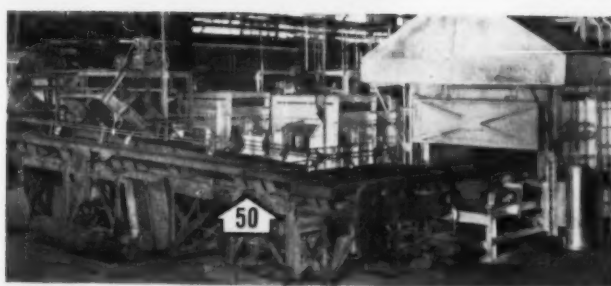
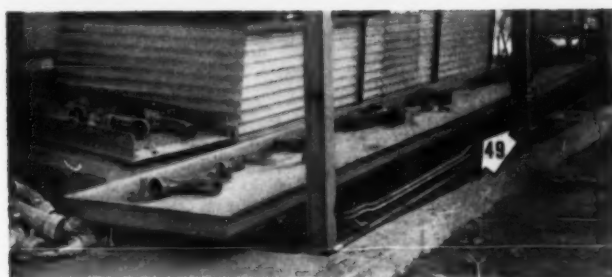
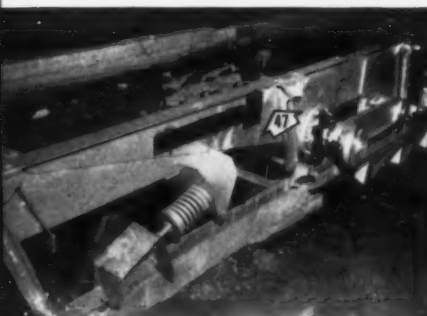
■ For manufacturers' literature describing belt conveyors, circle numbers 43, 44, 45 and 46, Reader Service card, page 7-8.

VIBRATING and OSCILLATING CONVEYORS

● Vibrating and oscillating conveyors serve more than one function at once; while castings move forward, they are also tumbled, facilitating shakeout, cooling or other foundry applications requiring this type of action. With a vibrating conveyor, castings on their way to shakeout (47) have much of the sand shaken loose before

actual shakeout takes place. Vibrating conveyors for cooling (48 and 49), inspection and cooling (51) and cooling with hood for heat draw-off (52) are shown. Conveying for heat treating (50).

■ For literature describing all types of manufacturers' vibrating and oscillating conveyors, circle numbers 47, 48, 49, 50, 51 and 52 on the Reader Service card, page 7-8.



PORTABLE HOPPERS and TOTE-BOXES

Portable hoppers and tote-boxes that can be spotted at multiple locations through a plant provide an efficient means of bulk handling. Eight typical applications of various types of these units are illustrated. These applications are: truck-carried tote-box with 40 cu yd or 30,000-lb payload (53) is suitable for handling solids or liquids; portable hopper (54) serves as storage bin at end of conveyor; portable tote-boxes (55) store parts in process; portable hopper (56) is used to haul and dump gates and risers; truck-carried hopper (57) with cover is used to empty dust collector; truck-carried hopper (58) is used to unload new sand; truck-carried hopper (59) is loaded with waste to be dumped; truck-carried hopper (60) unloads waste materials.

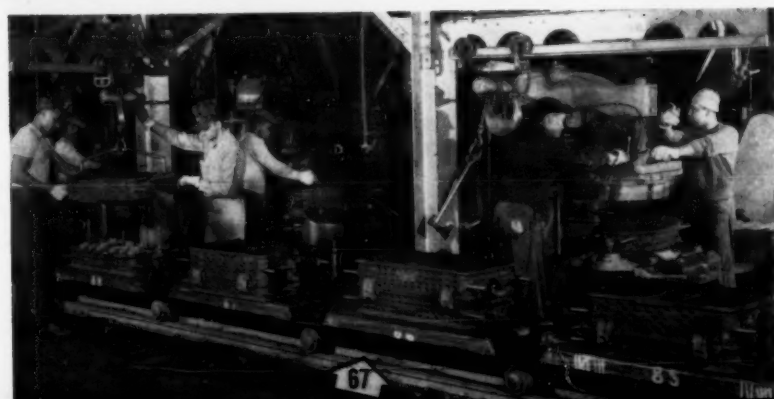
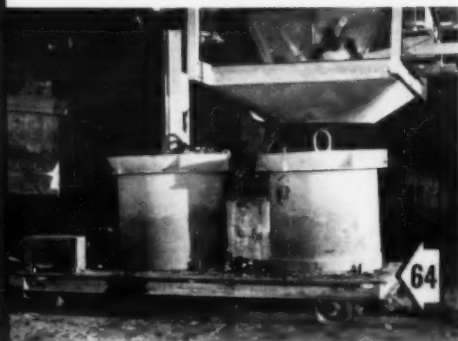
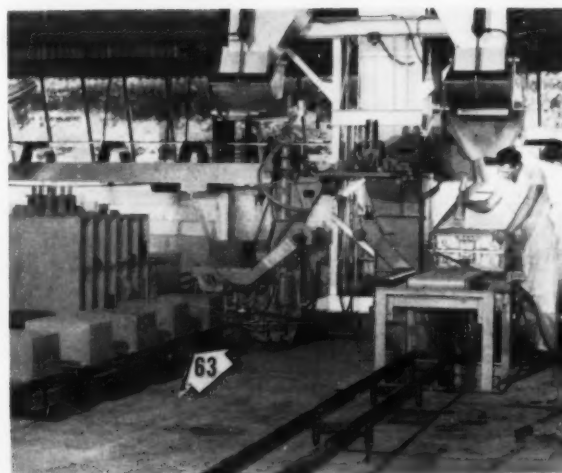
■ For descriptive literature from manufacturers of this equipment, circle number corresponding to photograph on Reader Service card, page 7-8.



CAR-TYPE CONVEYORS

Car-type conveyors provide a mechanized means of moving heavy items at production line speeds. Typical metalcasting applications include charge make-up and mold conveying. Applications illustrated are: charge make-up (62) with charge buckets conveyed on merry-go-round of cars; non-mechanized car-type conveyor for molds (63); charge make-up using car carrying two buckets (64); pouring-off molds carried on cars (65); swing grinding operation with work resting on cars (66); mold assembly on cars (67).

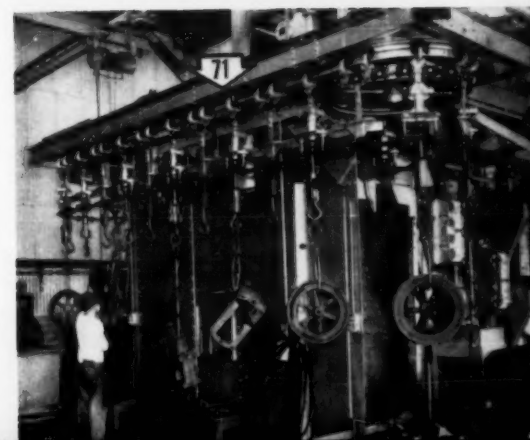
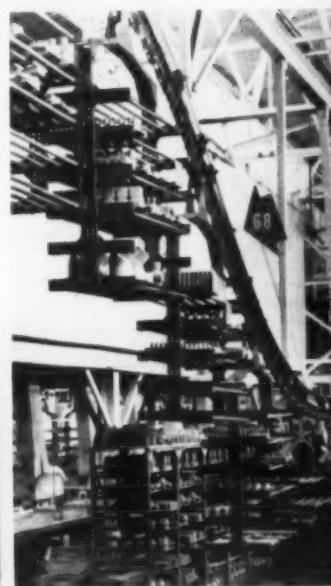
■ For descriptive literature from manufacturers of car-type conveyors, circle numbers 62, 63, 64, 65, 66, and 67 on the Reader Service card, page 7-8.



PENDULUM CONVEYORS

Pendulum conveyors are utilized where it is desired to convey materials at a distance above the floor. Typical applications illustrated are: moving cores to core ovens (68); moving castings to grinding stations (69); mold conveying (70); handling castings in the cleaning room (71).

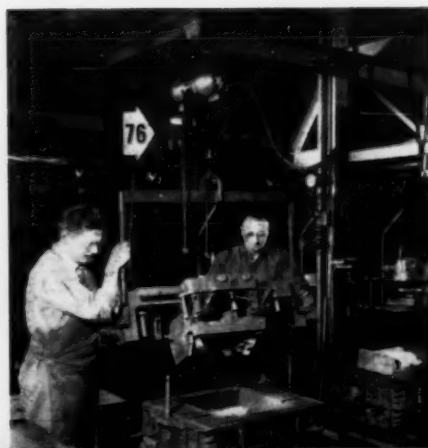
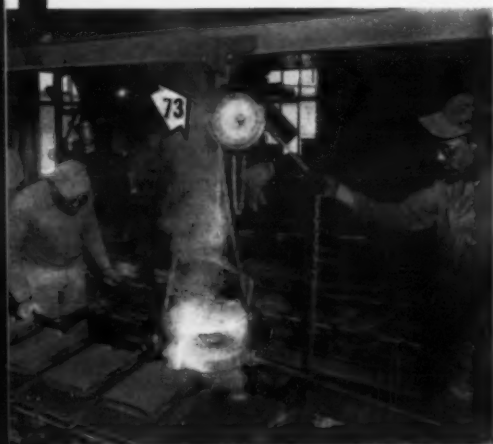
■ For descriptive literature from manufacturers of pendulum conveyors, circle numbers 68, 69, 70, and 71 on the Reader Service card, page 7-8.



HOISTS

Hoists are operated by hand, electricity or air, and used in conjunction with cranes and monorails to afford both horizontal and vertical movement of goods. Foundry applications include charging (72) here, electric trolley hoist; pouring (73), chain hoist; stacking materials for storage (74) electric; loading castings for shot blast cleaning (75), hand-chain hoist and combined with a monorail, lifting and setting cores into the mold (76), electric hoist.

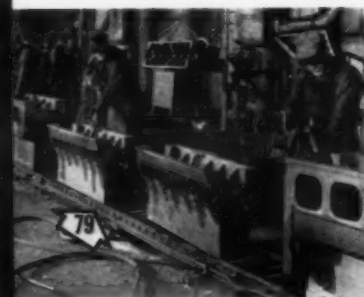
■ For literature describing all types of manufacturers' hoists, circle numbers 72, 73, 74, 75 and 76, Reader Service card, page 7-8.



ROLLER CONVEYORS

Roller conveyors offer efficient transportation of materials where continuous movement is not practical. They are usually non-mechanized, affording transfer of materials with a minimum of effort. This type of conveyor performs well in foundry operations such as: grinding (77); pouring (78); the chipping operation (79) shown is a mechanized, continuous moving one; core setting and assembly (80) and mold production (81), note the roller conveyor mold transfer cars.

■ For literature describing manufacturers' roller conveyors of all types, circle numbers 77, 78, 79, 80 and 81 on the Reader Service card, page 7-8.

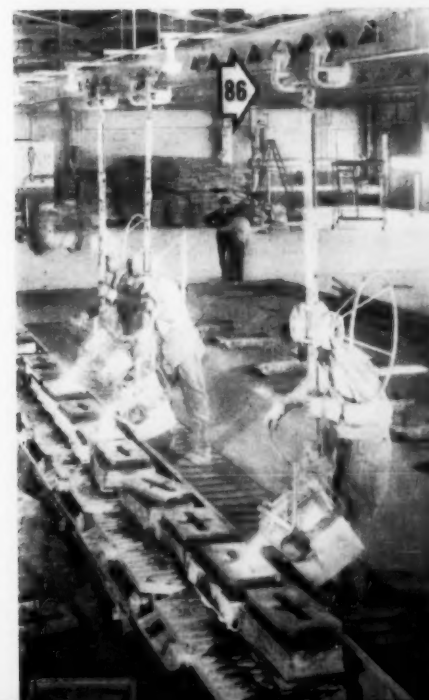
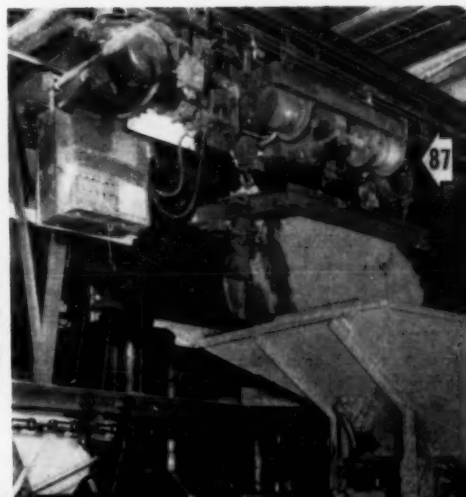
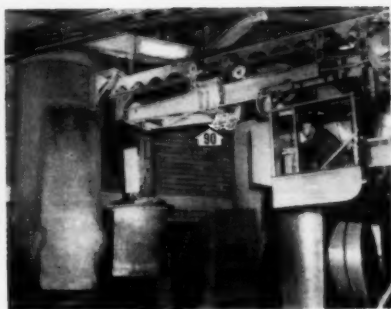
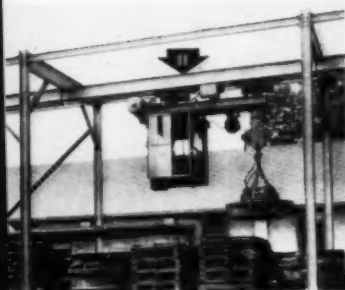
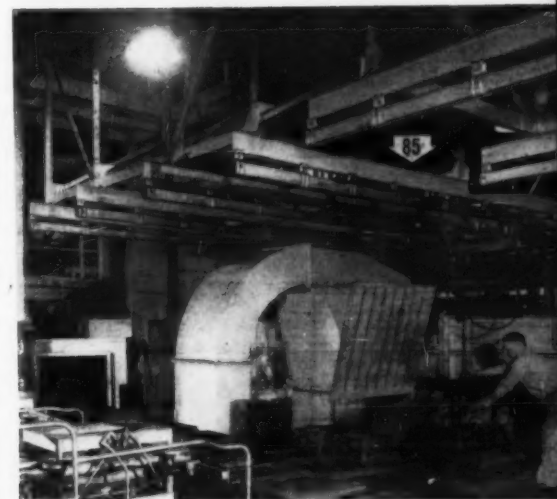
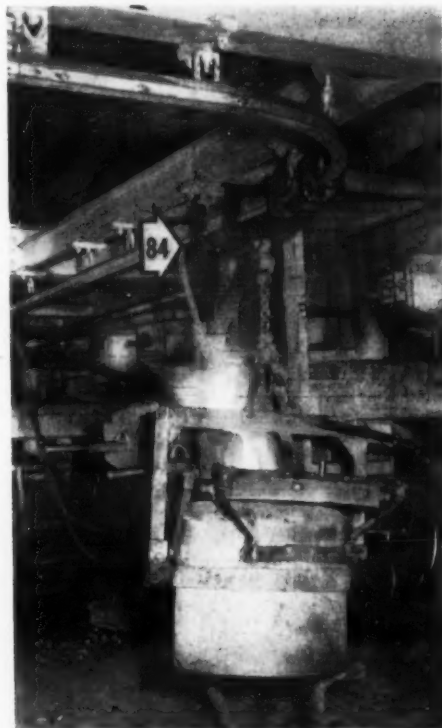
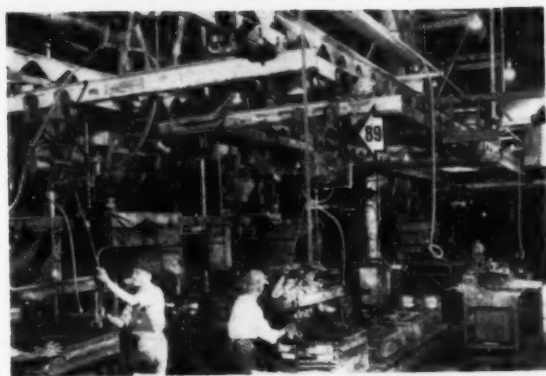
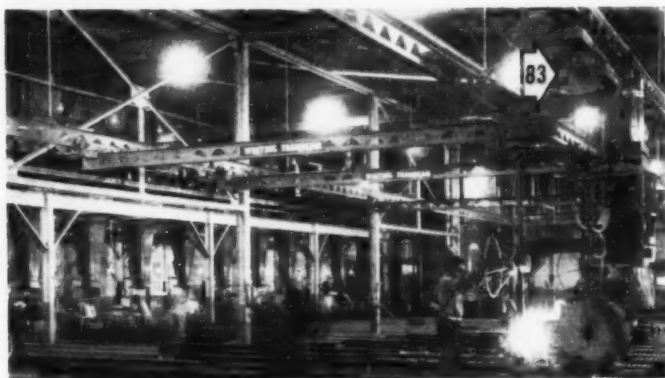
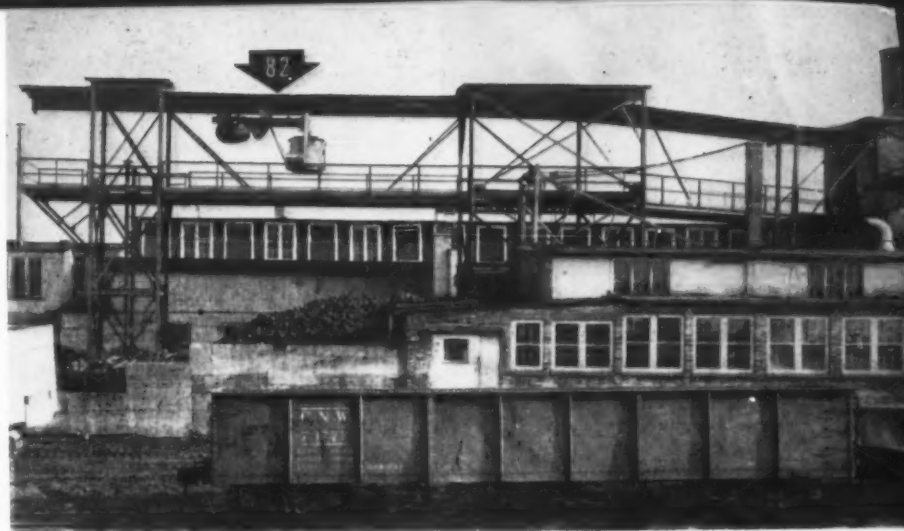


MONORAIL CONVEYORS

Monorail systems are designed as overhead conveying units, performing a multitude of materials handling functions in foundries while leaving valuable floor space clear for floor-operated equipment. Cupola charging with bottom-discharge buckets is often handled by monorail; systems vary from fully automatic (82) to cab operated (90) and other applications. Metal transfer by monorail carries huge

bull ladles (84) full of molten metal for transfer to pouring ladles (83), with a minimum of effort. The pouring operation is also more easily accomplished by monorail (86). Mold-making, from flask storage (88) to handling of cope and drag (89) is simplified by use of monorail conveying. Coupled with a side-dumping hopper, a monorail system (87) is an efficient sand conveyor. Transfer of heavy loads over short distances (85) takes the strain out of operations such as shakeout.

■ For literature describing monorail applications of all types, circle numbers 82 through 90, Reader Service card, page 7-8.



Designers and Buyers Become Target of 1959 Castings Show

■ An industry-wide, coordinated effort to promote the greater use of castings will be directed to castings designers and buyers at the 63d Castings Congress & Engineered Castings Show. The Congress and Show sponsored by AFS will be held April 13-17 in Chicago.

Activities will be conducted at both the Sherman and Morrison Hotels. The Castings Show and technical sessions will be held at the Sherman and a portion of the program at the Morrison.

In an effort to pin-point the advantages of castings, two steps have been taken.

■ Each of the Society's technical divisions and general interest committees contributing papers will supply two technical papers appealing to designers and buyers of castings.

■ The Castings Show will be restricted to four classes of exhibitors as in the 1st Engineered Castings Show held during 1957 in Cincinnati. Eligible exhibitors are:

- 1) Companies producing castings for sale.
- 2) Exhibitors of laboratory equipment for testing and quality control.

- 3) Producers of metals and alloys contributing to castings quality.
- 4) Producers of patterns for sale.

Benefits to Designers

Designers will be able to see an industry-wide display of what the casting industry produces. They will be able to see and compare the various molding methods and metals and be able to discuss the design, pattern and casting functions prior to the drawing of the original prints.

They will benefit from:

Applications—Through the display of castings being used at the present time as end products and component parts as illustrated by castings, patterns and models.

Consultation—Through the presentation of case histories of products redesigned or converted to castings. They will see how castings can furnish longer life, lower cost, better finish, decreased machining time and lower maintenance.

Future Applications—Designers and buyers will learn the latest in foundry techniques and metals and will learn how castings can meet increasingly stricter tolerance requirements.



N E W S

and

VIEWS



View of Chicago's Magnificent Mile looking northward from the loop. Chicago for the tenth time becomes host city to the annual Castings Congress. Among reasons for its selection are the concentration of foundries in this area, diversification of industry, center of the nation's transportation and adequate housing. Technical sessions and the Engineered Castings Show will be held at the Sherman Hotel. Other AFS activities will be held at the Morrison Hotel. Both are located in the Chicago loop and within a few minutes walking of each other.

Aim 1959 Technical Program to Both Industry and Buyers

■ Latest developments in foundry techniques and metals will be emphasized in technical papers for casting buyers and designers attending the Castings Congress & Foundry Show. Each AFS major technical division and general interest committee participating will direct a portion of its papers specifically to buyers of castings.

In addition to technical sessions there will be luncheons, dinners and shop courses. Author-chairman breakfasts will be held daily at 8:00 am to explain the day's activities and to acquaint authors and chairmen.

Technical sessions will start daily at 9:30 am with luncheons scheduled each day. Two afternoon sessions will be held daily except Friday. Evening sessions will include a Sand Shop Course at 8:00 pm Monday, a Canadian and Sand Division Dinner at 6:00 pm Tuesday, the annual AFS Banquet at 6:00 pm Wednesday and the Alumni Dinner at 6:00 pm Thursday.

The annual AFS Business Meeting and Hoyt Memorial Lecture will be held Wednesday morning. During that time the exhibits will be closed and no technical sessions conducted.

A total of five shop courses will be held. Both the Malleable and Gray Iron Divisions will sponsor two and the Sand Division one.

The annual Business Meeting will include the President's address and election of national Officers and Directors. Awards will be made to national winners in the Apprentice Contest and to recipients of Awards of Scientific Merit and Service Citations. Gold Medal winners will be honored at the Annual Banquet Wednesday evening.

The technical divisions and days during which sessions will be sponsored:

Brass & Bronze—Monday and Tuesday.

Die Casting & Permanent Mold—Wednesday.

Ductile Iron—Thursday and Friday.

Education—Tuesday.

Gray Iron—Tuesday, Wednesday, Thursday and Friday.

Light Metals—Monday and Tuesday.

Malleable—Monday and Tuesday.

Pattern—Monday and Tuesday.

Sand—All five days.

Steel—Monday and Tuesday.

General Interest Committees and their days:

Fundamental Papers—Thursday.

Heat Transfer—Thursday and Friday.

Industrial Engineering—Tuesday and Wednesday.

Management Development—Wednesday.

Plant and Plant Equipment—Friday.

Safety, Hygiene & Air Pollution—Tuesday.

Following is the tentative technical program:

MONDAY, APRIL 13

8:00 am . . . Authors Breakfast.

9:30-11:30 am . . . Light Metals, Malleable, Pattern.

12 Noon . . . Light Metals Luncheon, Malleable Luncheon.

2:00-4:00 pm . . . Brass & Bronze, Sand, Pattern.

4:00-5:30 pm . . . Brass & Bronze, Malleable Shop Course.

8:00-10:00 pm . . . Sand Shop Course.

TUESDAY, APRIL 14

8:00 am . . . Authors Breakfast.

9:30-11:30 am . . . Brass & Bronze, Pattern, Malleable, SH&AP, T&RI Trustees.

12 Noon . . . Brass & Bronze Luncheon, Pattern Luncheon, Board of Directors Luncheon & Meeting.

2:00-4:00 pm . . . Light Metals, Education, Industrial Engineering & Cost.

4:00-5:30 pm . . . Sand, Light Metals, Malleable Shop Course, Gray Iron Shop Course.

6:00 pm . . . Canadian Dinner, Sand Dinner.

WEDNESDAY, APRIL 15

8:00 am . . . Authors Breakfast.

9:30-11:30 am . . . Annual Business Meeting & Hoyt Lecture.

12 Noon . . . Management Luncheon.

2:00-4:00 pm . . . Steel, Sand, Die Casting & Permanent Mold, Gray Iron.

4:00-5:30 pm . . . Industrial Engineering & Cost, Die Casting & Permanent Mold, Gray Iron Shop Course.

6:00 pm . . . Annual Banquet.

THURSDAY, APRIL 16

8:00 am . . . Authors Breakfast.

9:30-11:30 am . . . Steel, Ductile Iron, Fundamental Papers.

12 Noon . . . Steel Luncheon, Gray Iron Luncheon, Past Presidents Luncheon.

2:00-4:00 pm . . . Sand, Heat Transfer, Ductile Iron, Fundamental Papers.

4:00-5:30 pm . . . Steel, Gray Iron.

6:00 pm . . . Alumni Dinner.

FRIDAY, APRIL 17

8:00 am . . . Authors Breakfast.

9:30-11:30 am . . . Sand, Heat Transfer, Ductile Iron.

12 Noon . . . Ductile Iron Luncheon.

2:00-4:00 pm . . . Gray Iron, Plant & Plant Equipment.

National News

Increasing Interest in AFS Apprentice Contest Reflected in Steady Growth

■ Competition in the Robert E. Kennedy Memorial Apprentice Contest is now entering its second month. All AFS chapters are encouraged to conduct local elimination contests. Local contests must be concluded by March 1 in order to allow sufficient shipping time to meet the national judging deadline of March 15, 1959.

Since 1950 the number of chapters participating has shown a steady growth, rising from 10 to 18 in the 1958 contest. During this time the number of companies submitting entries has increased from 98 to 151; the total entries from 267 to 572; and the entries entered in national judging from 91 to 120.

Wood patternmaking entries in the national judging have consistently lead the other four divisions, ranging from 33 to 45. Gray iron molding entries are second followed by metal patternmaking, non-ferrous molding and steel molding.

Eight chapters conducted local elimination contests for the nine-year period 1950-1958. They are: Detroit, Eastern Canada, Northern Illinois & Southern Wisconsin, Northeastern Ohio, St. Louis, Southern California and Wisconsin. During 1958 both the Central Illinois and Corn Belt Chapters entered the competition for the first time.

Purpose of Contest

The Kennedy Memorial Apprentice Contest has been held annually since 1924 as a competition to stimulate the development of individual skills and craftsmanship in patternmaking and foundry trades and to foster increased interest in apprentice training and other aspects of in-plant training in metalcastings industry.

Competition is held in wood patternmaking, metal patternmaking, gray-iron molding, steel molding and non-ferrous molding.

The amount of apprentice training completed has no bearing on eligibil-

ity and is not considered in the judging.

Prizes and Awards

First place winners in each of the five divisions in national competition will receive \$100, 2d place, \$75 and 3d place, \$50. In addition 1st and 2d place winners, in each of the five divisions, will receive round-trip travel expense to and from the 1959 Convention in Chicago. All other expenses shall be assumed by the winner, his company or his local chapter.

Certificates of recognition, signed by AFS President L. H. Durdin will be awarded to all winners in each national contest division.

Board of Awards Meets to Select Top Foundrymen

■ Nominations for Society Awards will be considered by the AFS Board of Awards in its Dec. 9 meeting in Chicago. AFS Awards available for 1959 include AFS Gold Medals, Honorary Life Memberships, Award of Scientific Merit and Service Citation.

AFS Gold Medals—are the highest awards given by the Society and are made exclusively for outstanding technical contributions.

Honorary Life Memberships—are presented to retiring AFS Presidents, Gold Medalists and Hoyt Memorial Annual Lecturers.

Award of Scientific Merit—granted as a technical citation for recognition of outstanding papers, meritorious technical services or effort, or development of a process, method or engineering advancement having "future possibilities."

Service Citation—given in recognition for outstanding general service, primarily of a non-technical nature, to AFS and the castings industry.

Two Engineering Courses Show How to Reduce Foundry Costs

■ Controlling foundry costs through more efficient plant layout and cost controls will be presented to foundrymen in two T&RI courses remaining in the 1958 schedule.

Foundry Plant Layout will be given Nov. 11-12 at the Hamilton Hotel, Chicago, and *New Industrial Engineering Techniques* will be presented Dec. 8-12 at the Marquette Management Center, Milwaukee, under the co-sponsorship of T&RI and Marquette University.

Foundry Plant Layout

More efficient use of plant space and equipment will be stressed in the plant layout course. Factors to consider in rehabilitation or construction of new plants will be presented by experts. Emphasis on the first day will be placed on plant physical layout and materials handling.

The second day's activities will revolve around equipment selection and production sequence. On the final day plant layout procedure and safety and hygiene in plant layout will be discussed.

An example of the thoroughness of the course is indicated by the study of plant layout procedure. The course is divided into four general topics: building analysis and building site; consideration of building additions; three stages of planning sequence and use of models or templates.

The tentative subjects covered under planning sequence are:

Plan of foundry site—Superimposed flow lines, material flow, product flow, production equipment, department location.

Department study—Complete layout, location of machines, conveyors and ovens, superimpose flow lines, flexibility and maintenance considerations.

Individual operation and work stations—Accessibility of materials and equipment, handling aids, motion and time study, dualize cycle in operation, flow-process charts, machine operating charts, and savings in manpower, distances travelled, number of operations and time cycle.

The course is designed for foremen, supervisors, industrial and production engineers and management.

Advanced Industrial Engineering

Practical cost controls for foundries will be studied at the December course. Each of the five days will be devoted to a specific subject.

The subjects and instructors: *Work Sampling*, Prof. W. J. Richardson, Lehigh University, Bethlehem, Pa.

More Accurate Rating of Time Studies; Cutting the Errors in Half, Dr. M. E. Mundel, time study authority.

Statistical Quality Control, James Barrabee, foundry quality control engineer, International Harvester Co., Milwaukee; Irving Schoeninger, assistant ceramic engineer, Globe Union Co., Milwaukee; Arnold Jakel, quality control consultant.

Using Motion Pictures in the Foundry for Industrial Engineering, Dr. Mundel and Lacey Randolph, American Steel Foundries, Granite City, Ill.

The course is designed for industrial engineers, cost control personnel, supervisors and management.

Registration

Tuition fees for courses are: *Foundry Plant Layout*, \$40; *Advanced Industrial Engineering*, \$125. Registrations can be made with the Training & Research Institute, American Foundrymen's Society, Golf & Wolf Roads, Des Plaines, Ill.

T&RI Offers Chapters Services

■ An opportunity to bring the finest in foundry technology courses to local chapter areas is available to chapters through jointly sponsoring a program with the AFS Training & Research Institute.

Plans are now being made for the 1959 T&RI schedule and chapters are advised to make their desires known early to the AFS Central Office.

To date two very successful courses have been jointly sponsored with AFS chapters. One with the Northern California Chapter and one with the Ontario Chapter.

All that is required of chapters is that they actively promote registration to insure adequate attendance. A minimum of 50 students is necessary. The National Headquarters will aid chapters by preparing suitable announcements and promotion material and will handle the mailing.

Both the Northern California and Ontario Chapters jointly sponsored the Cupola Melting of Gray Iron course.

AFS to Organize Tours to Two Internationals

■ As a member of the International Committee of Foundry Technical Associations, the American Foundrymen's Society will organize special tours to the 1959 and 1960 International Foundry Congresses.

The 26th International Foundry Congress will be held in Madrid, Spain, Oct. 4-10, 1959, in cooperation with the Iron & Steel Institute of Spain. An 11-point program is planned including technical sessions, plant tours, meetings of International Foundry commissions and special programs for ladies.

The 27th International Foundry Congress is scheduled for Zurich, Switzerland, Aug. 14-20, 1960. Following the Congress there will be organized industrial and scenic tours.

Japanese Foundrymen Study American Plants on Tour

■ A 12-man Japanese Small Business Foundry Layout Specialist Study Team has recently toured the United States. The group, on a 6-week visit, studied small to medium size foundries and foundry equipment manufacturers.

The team consisted of foundry executives, managers and research men.

Course Outlines Principles of Non-Ferrous Metallography

■ Theory and application of non-ferrous metallography techniques were detailed to 19 students from the United States and Canada in a three-day course presented by the AFS Training & Research Institute. The classes were held in Chicago and Evanston, Ill., Sept. 15-17.

Included in the program were history, basic metallurgy, terminology, equilibrium and phase diagrams, micro and macro analysis, physical properties based on metallographic interpretation, heat treatment and graphic representation.

A 4-man team from Buehler, Ltd., Evanston, Ill., discussed metallographic equipment and sample preparation. Instructors were George W. Graves, Cornelius A. Johnson, Frank Restivo and Erich J. Weidner.

Among subjects covered at the Buehler plant were metallographic sample preparation, sectioning, belt

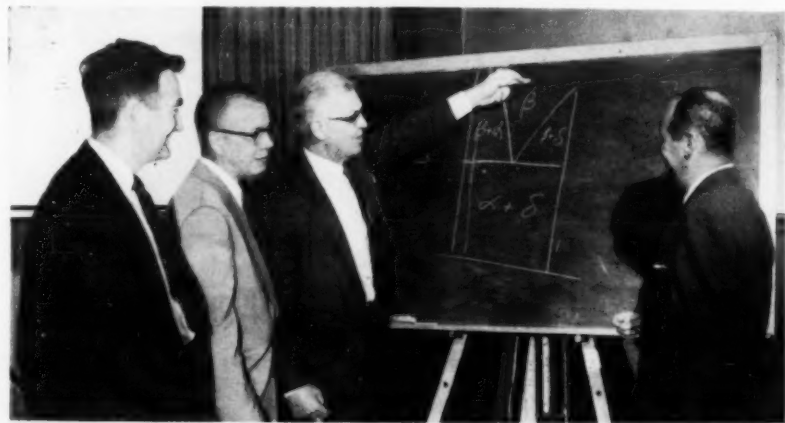
surfacing, mounting, rough grinding, rough polishing, final polishing, etching techniques, disturbed metal layer, sample preparation, macroetching, visual examination, macro examination, micro examination and photomicrography.

Edward Trela, Apex Smelting Co., Cleveland, lead sessions on physical metallurgy and metallurgy of aluminum alloys.

F. L. Riddell, H. Kramer & Co., Chicago, served as the leader in microscopic and macroscopic analysis of copper-base alloys and metallographic examination of copper-base alloys.

K. E. Nelson, Dow Chemical Co., Midland, Mich., conducted the session on metallography of magnesium alloys.

Ralph E. Betterley, T&RI Training Supervisor, opened the course with a definition of terms and conducted the achievement test.



Teachers and students conduct informal review at T&RI Metallography of Non-Ferrous Metals course held in Chicago. Left to right are Jack H. Thompson, Bodine Pattern & Foundry Co., St. Louis; Instructor K. E. Nelson, Dow Chemical Co., Midland, Mich.; George Schumacher, Gardner-Denver Co., Quincy, Ill.; and Instructor F. L. Riddell, H. Kramer & Co., Chicago.

Name St. John as 1959 Hoyt Lecturer

■ Harry M. St. John, outstanding non-ferrous chemist and metallurgist, has been selected as the 1959 Hoyt Memorial Lecturer. His talk will deal with the brass and bronze field of the metalcasting industry. The title of his talk has not been announced.

He has been active for many years in AFS committee work, particularly in electric melting. However his research efforts and cooperative activities have included all phases of non-ferrous foundry technology.

St. John was formerly Chairman of the AFS Brass & Bronze Division, Lecture Committee and Publications Committee. He was awarded the William H. McFadden Gold Medal in 1947 for his "outstanding work in the field of non-ferrous casting research over a period of many years.

From 1923 to 1938 he was chief metallurgist for Detroit Lubricator Co. and from 1938 to 1955 foundry superintendent for Crane Co. Since 1955 he has been a foundry consultant.

In addition to his research work he has given numerous talks to tech-



H. M. St. John

nical societies and is the author of numerous technical papers and articles and author of *Brass and Bronze Foundry Practice* published in 1958.

Gray Iron Division Establishes Award to Honor Outstanding Technical Papers

■ A new award, known as the Gray Iron Division Award, has been approved by the AFS Board of Directors. It will be given in recognition of outstanding contributions to published literature on the manufacture, use or properties of gray cast iron.

Qualifications

To be eligible, papers or publications must meet the following requirements:

- Be an English-written manuscript submitted prior to deadline date.
- Be selected by the Program & Papers Committee of the Gray Iron Division for inclusion in the official program of the Society for its Annual Meeting in the year for which the Award is granted.
- Deal with some aspect of the manufacture, use, or properties of gray cast iron.
- Be acceptable for publication in AFS TRANSACTIONS.

Basis for Judging

Papers will be evaluated chiefly on the expected value of the publication to the gray iron industry as a whole or to specific segments. Other factors for selection are:

- Timeliness of content.
- Adherence to publication proce-

dures and recommendations.

- Readability.
- Organization of manuscript.
- Adherence to principles of good grammar and spelling.
- Neatness of manuscript.

Presentation

The certificate, or certificates in the case of co-authors, will be presented by the Chairman of the Program & Papers Committee at the Division's annual luncheon held during the annual meeting for the year in which the award is granted.

Administration

Administration of the award will be the responsibility of the Gray Iron Program & Papers Committee and will be conducted by a Subcommittee on Awards, headed by the Program & Papers chairman. The Subcommittee will consist of three or five members appointed by the chairman, preferably members of the Program & Papers Committee and prior winners of the Award.

The Gray Iron Division plan may be adopted by other technical divisions of the Society. Division chairmen and vice-chairmen are requested to notify the technical department of their desire to install a similar program.

Encourage Members to Participate in Extensive Technical Program of AFS

■ How does an AFS member participate in Society technical activities? Participation is encouraged through the service on the technical committees and the authoring of technical papers.

Any member of the Society may signify his desire to serve as a member of any technical committee by writing to the chairman of a division or general interest committee stating his qualifications, experience or interest. Final approval rests with the chairman of the committee to which he is appointed.

Technical papers may be submitted by any member by first requesting an "Offer of Technical Paper"

Award Steel Division Project to Michigan

■ Research work on "snotters" is being sponsored at the University of Michigan, Ann Arbor, Mich., by the AFS Steel Division. The University has been awarded a 90-day contract.

Included in the research will be:

- A review of previous research done under a prior contract and a literature survey.
- An examination of typical samples to determine the nature of the material in the defect as will be supplied by several cooperating foundries.
- Petrographic examination of the defect.
- (1) Metallographic examination of metal-ceramic interface.
- (2) Chemical analysis of non-metallic petrographic examination if necessary.
- (3) X-ray and electron diffraction, if considered essential.
- (4) Other variables considered in previous research.

Name Chairmen for West Coast Regional Conference

■ E. G. Gaskell, Ace Foundry Ltd., Huntington Park, Calif. has been named as general chairman of the California Regional Foundry Conference to be held March 13-14 at the Huntington Sheraton Hotel, Pasadena, Calif.

Paul Bergmann, Westlectric Castings, Inc., Los Angeles, will serve as technical and program chairman.

The conference is sponsored by the Southern California and Northern California Chapters.

form from the National Office in Des Plaines, Ill. The form requests an abstract of the paper, estimated length, availability date and number of tables and illustrations.

Papers are mailed to Technical Directors and then reviewed by the Program and Papers Committee of the appropriate division for acceptance.

A "Guide to Authors" containing instructions and suggestions for the preparation of manuscripts is available to all prospective authors.

Acceptance of the paper contemplates its publication in MODERN CASTINGS, its presentation at the Annual Meeting, and its publication in TRANSACTIONS.

Select Grede as 1960 Lecturer

■ William J. Grede, president, Grede Foundries, Inc., Milwaukee, has been selected by the AFS Lecture Committee as the 1960 Charles Edgar Hoyt Memorial Lecturer.



W. J. Grede

Grede, winner of the AFS McFadden Gold Medal in 1953, was the first Chairman of the Wisconsin Chapter and a leader in the first AFS foundry conference held at the University of Wisconsin. He has also been active in AFS committee work and is past Chairman of the AFS Cost Committee.

Grede has been active in other technical societies and is a past president of the National Association of Manufacturers.

Improve Product, Then Market It, Massari Tells Foundrymen

■ Solving problems of design, cost, quality and service are the keys to the future of the metalcasting industry, S. C. Massari, T&RI Director, told foundrymen attending the T&RI Product Development course held Sept. 24-26 in Chicago.

Massari in citing needs for product development listed these factors: meeting competition from other sources, the changing needs of customers, closer structural control to improve life of cutting tools and precise control of mechanical properties.

Advantages of castings, as end products or component parts, enumerated by Massari were:

- Desirable properties of cast metals.
- Low cost.
- Wide latitude available to designer.
- Wide range in size.
- Intricate designs possible.
- Ability to place metal where needed.

Massari also presented typical examples of redesigned castings and new casting applications.

Claude Smith, Superior Steel & Malleable Castings Co., Benton Har-

bor, Mich., spoke on casting design. The first step, he stated, is the initial design to perform its basic function. Next he recommended several modifications to achieve the lowest casting cost.

Among factors to consider in lowering cost are: method of casting, moldability, minimum number of cores, adequate support for cores, provision for proper core venting, design of cross-section areas to promote directional solidification, provision for adequate gating and risering, simplified pattern and core box partings, ample holes to provide access to core for cleaning, elimination of loose pieces where possible, design checking or gaging devices on intricate cores or assemblies, and utilization of target and checking fixtures for inspection of castings as well as locating pads for machining operations.

Selection and construction of pattern equipment was presented by Richard L. Olson, Dike-O-Seal, Inc. and M. K. Young, U. S. Gypsum Co., both of Chicago. Massari also spoke on the choice of metals and elements to consider in marketing of castings.



Education and Our Industry's Survival was discussed at an Education Division meeting at the 52d Convention. A. F. Pfeiffer, Allis-Chalmers Mfg. Co., Milwaukee, and I. H. Dennen, Beardsley & Piper Div., Pettibone Mulliken Corp., Chicago, (left) presided. Panel members were C. F. Walton, Gray Iron Founders' Society, Cleveland; G. K. Dreher, Steel Founders' Society of America, Cleveland; C. V. Nass, Beardsley & Piper Div., Pettibone Mulliken Corp., Chicago; J. H. Lansing, Malleable Founders' Society, Cleveland; and E. J. Walsh, Foundry Educational Foundation, Cleveland.

Mold Surface Committee Working on 1959 Paper

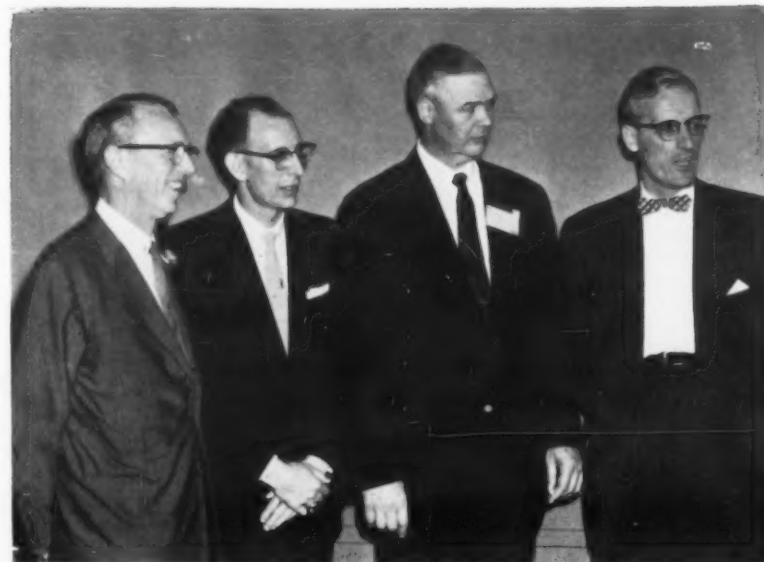
■ Work conducted by the Mold Surface Committee of the Sand Division will be presented as a technical paper at the 1959 Castings Congress. Editing of the report will be done by J. B. Caine.

Committee members will assist by filing reports, obtaining photographs and analyzing experimental castings.

Two Named by Sand Div. to Positions at Convention

■ Harry Gravlin, Chrysler Corp., Detroit, has been named as moderator at the Sand Division's Shop Course to be held during the AFS 1959 Convention in Chicago.

J. B. Caine, consultant, Cincinnati, has been named as the featured speaker at the Sand Division's Dinner to be held April, 14.



Participants in Gray Iron Division shop course at 62d Castings Congress were H. H. Wilder, Vana-dium Corp. of America, Chicago; W. W. Holden, Dostal Foundry & Machine Co., Pontiac, Mich.; E. J. Burke, Hanna Furnace Corp., Buffalo, N.Y.; C. F. Walton, Gray Iron Founders' Society, Cleveland.

Administration Meetings Link Board and Chapters

■ Each of the seven AFS administrative regions will hold meetings during the 1958-59 season to achieve closer cooperation between chapters and the Board of Directors.

At each meeting the Regional Vice-President presides. Invited to attend are AFS Directors in their respective regions and chapter Chairmen and Vice-Chairmen.

Major topics discussed include chapter affairs, membership, regional conferences, AFS developments, recommendations to the Board of Directors and regional news and events.

Four regional administration meetings were held in October. These were regions 1, 2, 4 and 5. Other regional administration meetings scheduled are: Region 6—Nov. 7, Peabody Hotel, Memphis, Tenn.; Region 3—Jan. 16, Hotel Statler, Cleveland; Region 7—March 12, Huntington Hotel, Pasadena, Calif.

Gray Iron Sponsors Project in Feeding

■ Research on the feeding distance of gray iron has been started at Case Institute of Technology, Cleveland, under the sponsorship of the AFS Gray Iron Division. The project will be supervised by Prof. J. F. Wallace, Case Institute.

Initially an investigation will be made of the use of cupola melted gray iron of a soft and high-strength type and will cover a study of the feeding distance in bar and plates.

Continue Research in Clay Determination

■ Investigation into AFS clay determination is being continued by the Grading, Fineness & Distribution Committee of the Sand Division. Tests will be made by several laboratories on two sands. These are:

- A new, synthetically bonded sand of known formula.
- A typical used foundry sand, known to contain no pitch.

The use of the "Sorting Coefficient" and "Uniformity Coefficient" in describing foundry sand fineness and distribution were discussed but due to limitations neither method was recommended by the committee.

Transactions Leads in Publication Sales

■ Five AFS publications had sales in excess of 700 copies for the year ending May 31, 1958, with total sales amounting to 15,228.

The leader was the 1957 TRANSACTIONS with 1984 copies. Others in the top five were GLOSSARY OF FOUNDRY TERMS, 1179; CAST METALS HANDBOOK, 1128; CUPOLA AND ITS OPERATION, 883; and PROCESSING MOLDING SANDS, 718.

Sand Division Changes

■ Two changes have been made in Sand Division Chairmen. LeRoy Taylor, Ottawa Silica Co., Ottawa, Ill., now heads Committee 8-J and J. R. Young, Cadillac Motor Car Div., GMC, Detroit heads Committee 8-K.

Vancouver Puts Heavy Emphasis on Foundry and Patternmaking Training

■ Foundry education is a 12-month a year program at Vancouver, British Columbia, Canada. Foundry and patternmaking facilities at Vancouver Technical School are used 10 months of the year by 10th, 11th and 12th grade students.

During the summer recess classrooms and equipment are taken over by the University of British Columbia, College of Education for training of industrial arts teachers in the province.

This winter for the first time apprentice training classes will be held for beginning patternmakers and third-year machinist apprentices.

Weston C. Catherall, instructor of foundry practice and patternmaking at Vancouver Technical School, also conducts classes for the University of British Columbia and the apprentice training classes. In addition he is Education Chairman of the AFS British Columbia Chapter.

Vancouver Technical students receive 260 hours of instruction during the school year including practical work and related theory. "We have good and ready placements for any of our graduates who wish to follow careers in the industry," says Catherall.

Catherall describes the school foundry as "neat, tidy and forward looking with a new layout." Included in the equipment are:

- 60-lb rocking furnace.
- 90-lb tilting-type gas furnace.
- 4x4x4 in. gas, thermostatic controlled core oven.
- Two sand mullers.
- Sand riddling machine.
- Shot blast unit.
- Heavy-duty floor pedestal grinder.
- Five 12-ft molding benches.
- Wood and steel molding flasks.
- Vibrators and molding tools.

Laboratory equipment consists of physical testing equipment, moisture tester, permeability meter, balances, rapid sand washer and accessories, lance pyrometer and other small testing accessories. Future plans call for chemical and microscopic study of cast metals.

In the patternmaking section is a complete line of woodworking machines and hand tools. A growing supply of patterns comes from students and contributions from local patternmaking shops.

Metals melted are gray iron, brass and aluminum. In the last school year students poured over 9000 lb of iron, 500 lb of aluminum and 200 lb of brass.



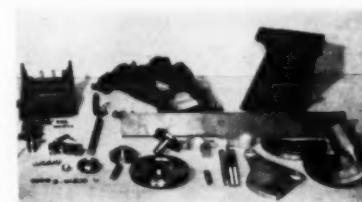
Setting core by students. School aids in placing graduates in local foundries and pattern shops.



Patternmaking equipment includes necessary machine and hand tools. Local shops aid school by contributing patterns.



Vancouver Vocational School students get ready to close molds after setting cores and drawing pattern.



Variety of parts made for jointer by Vocational students. Despite a busy schedule, instructor Catherall has attended all AFS Foundry Instructors Seminar for secondary schools having foundry and patternmaking courses. He traveled the greatest distance of those participating in the Seminar held this year in Cleveland.

Chapter News

Chapter Program Initiated in 1934 Links 47 Local Groups to National Activities

■ Formation of AFS chapters was stimulated through the organization of regional programs during the early 1930s. The Chicago Foundrymen's Club was the first local organization to petition for a change in by-laws to permit the organization of chapters. Chicago had the honor of being installed as the No. 1 chapter.

Today there are 47 regular chapters, 12 Student Chapters and approximately 13,000 members in 33 countries throughout the world.

AFS Chapter Chronology

(Listed in order of month in which chapters are considered officially established.)

1. Chicago Chapter — October, 1934.
2. Northeastern Ohio Chapter — April, 1935.
3. Philadelphia Chapter — June, 1935.
4. Quad City Chapter — September, 1935.
5. Northern California Chapter — September, 1935.
6. Detroit Chapter — October, 1935.
7. St. Louis Chapter — October, 1935.
8. Wisconsin Chapter — October, 1935.
9. Birmingham Chapter — April, 1936.
10. Western New York Chapter — April, 1937.
11. Southern California Chapter — May, 1937.
12. Metropolitan Chapter — January, 1938.
13. Northern Illinois-Southern Wisconsin Chapter — May, 1938.
14. Ontario Chapter — July, 1938.
15. Central New York Chapter — January, 1939.
16. Michiana Chapter — January, 1939.
17. Cincinnati District Chapter — February, 1939.
18. Central Indiana Chapter — October, 1939.
19. Chesapeake Chapter — October, 1940.
20. Western Michigan Chapter — February, 1941.
21. Twin City Chapter — May, 1941.
22. Toledo Chapter — October, 1941.
23. Eastern Canada Chapter — April, 1942.
24. Texas Chapter — November, 1943.
25. Rochester Chapter — January, 1944.
26. Canton Chapter — March, 1944.
27. Central Ohio Chapter — December, 1944.
28. Oregon Chapter — April, 1945.
29. Saginaw Valley Chapter, May, 1945.
30. Northwestern Pennsylvania Chapter — June, 1945.
31. Mexico Chapter — October, 1945.
32. Central Illinois Chapter — November, 1945.
33. Washington Chapter — November, 1946.
34. Timberline Chapter — January, 1947.
35. Tri-State Chapter — January, 1947.
36. British Columbia Chapter — April, 1947.
37. Central Michigan Chapter — April, 1947.
38. Eastern New York Chapter — November, 1947.
39. Tennessee Chapter — March, 1948.
40. Mo-Kan Chapter — March, 1949.
41. Corn Belt Chapter — May, 1952.
42. Mid-South Chapter — October, 1952.
43. Connecticut Chapter — November, 1955.
44. Pittsburgh Chapter — January, 1956.
45. New England Chapter — April, 1956.
46. Utah Chapter — November, 1956.
47. Piedmont Chapter — September, 1957.

How Does Your Chapter Do It?

■ Various methods have been adopted by chapters to stimulate attendance, to obtain new members and to increase participation.

In addition, some have extensive educational programs and others sponsor contests within the chapter.

Let us know what your chapter is doing to broaden its activities or improve its programs. Let us know how you do it. Other chapters are looking for new ideas. They may want to share in your ideas.

Michiana Chapter Holds 19th Annual Picnic



Michiana picnic included golfing, horseshoe pitching, bait casting and softball. Winning softball team is shown after victory. Picnic committee was headed by **H. H. Herzig**. Other members were **Reno Bartolucci**, Auto Specialties Mfg. Co., Benton Harbor, Mich.; **Robert Gallatan** and **Robert E. Hull**.



Chapter officers and members of Michiana picnic committee shown are: **Robert Gallatan** and **Walter Ostrowski**, Wheelabrator Corp., Mishawaka, Ind.; **Herbert H. Herzig**, City Pattern & Foundry Co., LaPorte, Ind.; Chapter Chairman **Philip Samler**, Auto Specialties Mfg. Co., St. Joseph, Mich.; Chapter Vice-Chairman **Robert E. Hull**, Casting Service Corp., LaPorte, Ind.; and **James C. Maggart**, Sibley Machine & Foundry Corp., South Bend, Ind.—**Walter Ostrowski**

Central Ohio Chapter Automated Swiss Foundry

Basic research necessary to develop proper sand compaction, measuring and preparation for a completely automatic foundry was explained at the September meeting by **Alex Homberger**, American Automation Corp., Ann Arbor, Mich.

Slides were used to show how the theories behind the Buhner automated method were developed. A movie illustrated this method in operation at a Swiss foundry which produces up to 300 molds per hour with nine men. Chapter Chairman **Dallas M. Marsh**, Cooper-Bessemer Corp., Mt. Vernon, Ohio, presided. **Harry E. Grabel**, Ohio Malleable Div., Dayton Malleable Iron Co., Columbus, Ohio, was program chairman—**Joseph A. Riley, Jr.**



Special Publications Produced by Chapters

Several chapters compile special publications for the benefit of members.

Included are annual directories which list chapter officers and directors, committee personnel, past chairmen, honorary life members, chapter by-laws, sustaining members, company members, company affiliation of individual members and a roster of individuals.

Northern California Chapter publishes every month the digest-size *Coast Caster* outlining future technical meetings and other chapter events, a history of coming speakers and a discussion of their subject, report on board meetings and briefs on chapter members.

Detroit Chapter publishes their monthly *Detroit Foundry News*, larger in size, which provides similar information and in addition carries advertising.

Other chapters also produce special publications.

Offer Free Ad to Members Seeking Foundry Positions

AFS members in good standing seeking employment in the metalcasting industry may place, free of charge, one classified ad of 40 words or less in the "Positions Wanted" column of *MODERN CASTINGS*.

Ads may be repeated in following issues at regular classified rates. Inquiries will be kept confidential if requested.

Send ads to *MODERN CASTINGS*, Classified Advertising Dept., Golf and Wolf Rds, Des Plaines, Ill.

Latest on Castings Show Sent to Chapter Chairmen

Brochures describing the 1959 Engineered Castings Show have been sent to all Chapter Chairmen to provide them with the latest information on the Show to be held April 13-17 in Chicago.

Chapter members are encouraged to participate and invite their customers and prospects to the combined 63d Castings Congress & Engineered Castings Show.

Ontario Chapter Holds Annual Picnic

A wide variety of games and contests were featured at the Chapter's annual picnic. In a softball game the ferrous foundrymen beat the non-ferrous team 6-1. Captains for the team were **Ted Evans**, Hamilton By-Products Coke Ovens, Ltd. and **Joe Molinaro** of International Malleable Iron Co., Ltd.

Winners in golfing were: **Tom Summerhayes**, Eureka Foundry & Mfg. Co.; **W. Adams**, Neptune Meters, Ltd.; **E. Wetherelt**, John Bertram & Sons Co., Ltd.; **W. McLean**, Galt Malleable Iron Co., Ltd. and **J. Edler**.

Other winners were: nail driving, **Jim Cunningham**, International Malleable Iron Co., Ltd.; hole drilling, **N. LaRocca**, Canada Iron Foundries, Ltd.; darts, **M. McCabe**, American-Standard Products (Canada) Ltd.; **Rob Roy**, Canadian Furnace Co., Ltd.; **A. Dick**, **Don Barnes, Jr.**, **Don Barnes**, Ltd.; balloon throwing, **Rick Reeves** and **Gerry Reid**, Canadian Westinghouse Co., Ltd.; 4-man ski race, **F. Kellam**, Electro Metallurgical Co., E. Ray, Canadian Westinghouse Co., Ltd.; **E. Reed**, **Wm. R. Barnes Co.**, Ltd.; **J. Storer-Folt**, Refractories Engineering & Supplies, Ltd.; casting weight judging, **Art Barnwell**, Canad-

ian Westinghouse Co., Ltd.; shot weight guessing, **Bill Cwethke**, Cunningham Foundry & Machine Co.

Ontario Chapter Conducts Three Sessions

Simultaneous sessions on steel, cast iron and non-ferrous were conducted at the Chapter's opening meeting.

A. B. Steck, Metallurgical Associates, Inc., New York, spoke to the steel group on *Hot Tears in Steel Castings*, covering restraint and hot spots, tendency to follow grain boundaries, effect of impurities, pouring temperature, internal shrinkage and solidification stresses.

J. E. Rehder, Canada Iron Foundries, Ltd., Montreal, Que., discussed *Newer Cupolas* including hot blast, water cooling and effect of tuyeres on cupola operation.

H. F. Bishop, Exomet, Inc., Conneaut, Ohio, outlined *Manufacture of Pressure Type Castings* to non-ferrous foundrymen. Four major points discussed were riser shrinkage, interdendritic shrinkage, gas porosity and dross porosity.

Tour of National Iron Division, Canada Iron Foundries, Ltd. was also made.

Winners of chapter's paper writing contest were presented with prizes. Winners were: **Art Johnston**, American-Standard Products (Canada) Ltd.; **Vince Furlong**, Foundry Services (Canada) Ltd.; and **John Allan**, St. Catharines Brass Works, Ltd.

A minute of silence was observed in respect to the late **Alex Pirrie**, former AFS National Director.—**M. E. Dillon**



Ontario Chapter members toured the National Iron Division, Canada Foundries, Ltd. during September to observe water-cooled cupolas. At left is Superintendent **Lindsay Cooper**. At right is **J. E. Rehder**, Canada Iron Foundries, Ltd., Montreal, who addressed steel foundrymen at the September meeting.—**V. H. Furlong**

Texas Chapter Opens Technical Season with Panel

■ Texas Chapter's first meeting featured a panel discussion of acid and basic electric-furnace melting of steel. The September meeting was held at the University of Houston, Houston, Texas.

Foundrymen participating in the panel were: Stanford Smith, Texas Foundries, Inc., Lufkin, Texas; Ellis Kingham, Texas Electric Steel Casting Co., Houston, Texas; moderator James Hewitt, Quality Electric Steel Castings, Inc., Houston, Texas; Guy Sherrill, Federal Steel Products Corp., Houston, Texas; and William J. Allen, Quality Electric Steel Castings, Inc.

Speakers on the program included Dr. J. T. Elrod, University of Houston and AFS National Director Jake Dee, Dee Brass Foundry, Houston, Texas.

—Harold H. Judson



AFS National Director Jake Dee.



Panelists at Texas Chapter's September meeting were Stanford Smith, Ellis Kingham, James Hewitt, Guy Sherrill, William J. Allen.



Dr. J. T. Elrod, University of Houston.



Texas Chapter officers: Vice-Chairman Ross Williams, Chairman Harold H. Judson, Secretary Fred W. Jacobs, Treasurer Robert Smith.



Wisconsin Chapter opened its technical program with five sectional programs in September. Shown above are George DiSylvestro, American Colloid Co., Skokie, Ill., who presented *Practical Studies of Veining Tendencies* and Edward Gibson, Grede Foundries, Inc., Wauwatosa, Wis. Below are L. Winters, Furan Plastic Co., Los Angeles, who talked on *Epoxy Resins and their Application in the Foundry* and L. Licau, Allis-Chalmers Mfg. Co., Milwaukee.—Bob DeBroux



British Columbia Chapter Patterns and Core Boxes

Pattern construction and core box design were discussed in an illustrated lecture at the September meeting by Richard L. Olson, Dike-O-Seal, Inc., Chicago.

Modern core blowing practice and long production runs result in greater wear at the core box partings or between core box and blow plate. Increased clamping pressures are required to effect sealing which causes additional wear and damage and has necessitated the facing of the partings with brass or steel.

Olson outlined the cost of patching rat holes in the cores caused by channelling of the partings, the cost of fin removal and the replacement cost. He explained how rubber seals



Modern Pattern Construction was discussed at the Washington Chapter September meeting by R. L. Olson, Dike-O-Seal, Inc., Chicago. Shown at head table are John Bermingham, E. F. Houghton Co., San Francisco; Program Chairman Fred R. Young, E. A. Wilcox Co., Seattle; speaker Olson; Chapter Chairman Leon Morel, Jr., Morel Foundry Corp., Seattle; Chapter Vice-Chairman Vernon W. Rowe, Ballard Pattern & Brass Foundry, Seattle; and Chapter Secretary Frank H. Jefferson, Frank H. Jefferson, Inc., Seattle.—Jack H. Peterson

could reduce erosion and blow-by at the partings and the partings and the core box design changes were necessary to use this technique.

Other subjects covered included the use of strong topset locator pins, type and placement of vents, position of the partings and the use of equipment stops.—A. W. Greenius

Cincinnati Chapter Holds Two Sessions

■ Ferrous and non-ferrous sessions were held at the opening meeting in September. Harvey Henderson, Lynchburg Foundry Co., Lynchburg, Va., discussed *Nodular Iron Poured in Shell Molds* at the ferrous session. William Ball, Jr., R. Lavin & Sons, Chicago, spoke on *Effects of Design on Making Non-Ferrous Castings* at the non-ferrous meeting. —James D. Claffey

Central New York Chapter Self-Curing Binders

■ Organic and inorganic binders were discussed in detail at the September meeting by O. J. Myers, Reichhold Chemicals, Inc., White Plains, N. Y.

Organic binders account for 90 per cent of binders in use today, dividing into protein, oil, resin and cereal. They rate high in collapsibility, workability, strength, surface finish and resistance to moisture penetration. Their disadvantages include cost, curing and a greater degree of gas formation.

Inorganic binders, divided into silicates, clays and cements, are cheaper, give off little gas and eliminate bake-out. Their disadvantages include difficulty in removing from casting, poorer surface finish and tendency to pick up moisture.—Carl Diehl

St. Louis Chapter Pneumatic Sand Handling

Approximately 90 St. Louis foundrymen heard George Anselman, Whirl-Air-Flow Corp., Minneapolis, discuss *Pneumatic Handling Improves Sand Quality*.—R. E. Hard



Gen. Joseph Colby, deputy commander, U.S. Army Ordnance Missile Command (center) addressed Northeastern Ohio Chapter in September. The General outlined the nation's missile program and the role castings are playing. He also told foundrymen what the Army wants in future castings. Primarily, they are improved mechanical properties, especially at minus 180 C; improved castings with shorter lead time and cheaper tooling and general product improvement such as better weldability. On left is Warner B. Bishop, Archer-Daniels-Midland Co., Cleveland; on right is Frank J. Dost, Sterling Foundry Co., Wellington, Ohio.—Harold Wheeler

San Antonio Section Sees Two Foundry Films

■ Two films dealing with foundry problems were shown at the September meeting held at K. O. Steel Castings, Inc., San Antonio, Texas. One film dealt with the correct use of chaplets, the other with the CO₂ process. Tentative plans call for alternating regular monthly meetings between Alamo Iron Works, San Antonio Machine & Supply Co. and K. O. Castings, Inc.

New England and Connecticut Chapters Tour



Visiting foundrymen in addition to watching valve production also toured various testing laboratories and attended a technical lecture.



Connecticut and New England Chapter members toured Chapman Valve Mfg. Co. foundries, Indian Orchard, Mass. in September. Tour was guided by Chapman Valve department heads and technical staff.—J. H. Orrok

Approximately 250 members of the New England and Connecticut Chapters toured the Chapman Valve Mfg. Co., Indian Orchard, Mass., in September. Guiding foundrymen on the plant visit were managers of the brass, iron and steel foundries, patternshops and members of the technical staff.

First stop on the tour was the steel foundry, largest of the Chapman foundries. The equipment includes two electric arc furnaces and two pair of induction furnaces. Visitors also toured the laboratories, as well as all testing equipment and one million volt x-ray machines.

Other stops included the steel foundry and steel machine shop, the iron foundry which has a continuous molding and pouring operation with a capacity of 40 tons daily, and the brass foundry.

Following the tour, Sidney Low, di-

rector of research, gave an illustrated talk on sand reclamation in the steel foundry.—Fred Holway

Drawings Aid in Stimulating Tennessee Chapter Attendance

■ The Tennessee Chapter stimulates attendance at monthly meetings by awarding \$10 to the holder of a winning ticket. Names of all chapter members are placed in the drawing and one is selected during the meeting. If the winner is not present the \$10 is carried over to the next meeting.

A second monthly drawing is also held among those attending the meeting. The winner is entitled to one free meal.

Chapter Reporter John D. Odom reports that these are merely stimulants. The key to the chapter's suc-

cessful technical programs lies in obtaining outstanding speakers together with monthly reminders to all members.

Chicago Chapter Records Chapter Talks

■ The Chicago Chapter is believed to be the first AFS chapter to appoint an Official Sound Recorder. George DiSylvestro, American Colloid Co., Skokie, Ill., was appointed to that position at the September meeting. DiSylvestro has been recording technical talks at Chicago meetings for the past three years.

In addition he has recorded talks before other chapters and at regional meetings and AFS Conventions.

Northwestern Pennsylvania Opens 1959 Season

■ One hundred members and guests attended the September meeting to hear Harry J. Kessler, Sorbo Mat Process Engineers, St. Louis, discuss "Manufacture of Jetomic Process Iron."—Walter Napp



Speaker Harry Kessler stresses point in talk before Northwestern Pennsylvania Chapter.



Official greeters at September meeting of Northwestern Pennsylvania Chapter were Ralph L. Severson, Westinghouse Electric Corp., Tafford, Pa., and J. F. Herman, Corn Products Co., Philadelphia.

Central Indiana Chapter Holds Annual Picnic

■ Central Indiana Chapter's annual picnic was held in September at Lake Shore Country Club, Indianapolis. Included on the program were golf, horse shoe competition and softball.—William R. Patrick



Members of the Central Indiana picnic committee; R. A. Thompson, Electric Steel Castings Co.; A. E. Murphy and J. P. Kemp, both of Hickman, Williams & Co. and P. V. Faulk, Electric Steel Castings Co.

Central Indiana foundrymen wait for door prize drawing.





J. T. Hornby, British Columbia



R. J. Mulligan, Twin City



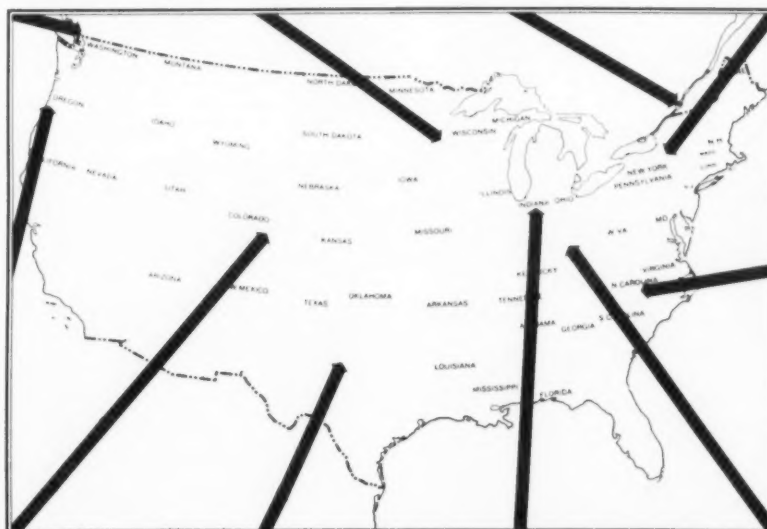
Max Reading, Eastern Canada



R. J. Denton, Central New York



R. M. Burns, Oregon



Meet Your Chapter Chairmen



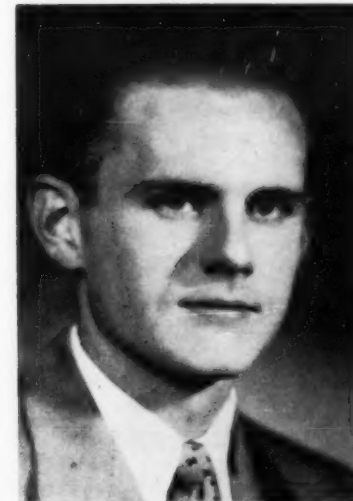
D. E. Matthieu, Piedmont



J. F. Taleck, Timberline



H. H. Judson, Texas



P. M. Semler, Michiana



R. R. Deas, Cincinnati

Personalities



Wisconsin Chapter officers have lunch with annual outing committee. Officers left to right are Secretary Bradley Booth, Vice-President L. J. Andres and Chairman L. J. Woehlke. Committee members are R. M. Stecker, C. A. Gehrman, Co-chairman Henry Seelboth, Don Gerlinger, George Tisdale and co-chairman J. A. Westover.—Bob DeBroux

major AFS meetings

NOVEMBER

7 . . . Region 6 Administration Meeting, Peabody Hotel, Memphis, Tenn.
10-12 . . . T&R Foundry Plant Layout course, Hamilton Hotel, Chicago.

DECEMBER

8-12 . . . T&R Advanced Industrial Engineering course, Marquette University Management Center, Milwaukee.
8 . . . AFS Nominating Committee, Annual Meeting, Sherman Hotel, Chicago.
9 . . . AFS Board of Awards, Annual Meeting, Union League Club, Chicago.
10 . . . T&R Trustees, Mid-Year Meeting, Union League Club, Chicago.

JANUARY

16 . . . Region 3 Administration Meeting, Hotel Statler, Cleveland.

FEBRUARY

11 . . . AFS Board of Directors, Spring Meeting, Palmer House, Chicago.
12-13 . . . Wisconsin Regional Foundry Conference, Schroeder Hotel, Milwaukee. Sponsors: Wisconsin Chapter; University of Wisconsin Student Chapter.
26-27 . . . Southeastern Regional Foundry Conference, Hotel Tutwiler, Birmingham, Ala. Sponsors: Birmingham, Tennessee Chapters; University of Alabama Student Chapter.

MARCH

12 . . . Region 2 Administration Meeting, Huntington Hotel, Pasadena, Calif.

APRIL

13-17 . . . AFS Castings Congress & Engineered Castings Show, Hotels Sherman and Morrison, Chicago.

MAY

21 . . . AFS Division Meetings, Executive Committees, Program & Papers Committees, Annual Review.
22 . . . AFS Technical Council, Annual Meeting, Chicago.
25 . . . AFS Publications Committee, Annual Meeting, Chicago.

JUNE

10 . . . AFS Board Orientation Meeting, Central Office, Des Plaines, Ill.
11-12 . . . 16th Annual Chapter Officers Conference, Chicago.
15 . . . T&R Research Committee, Annual Meeting, Chicago.
18-20 . . . 4th Annual Foundry Instructors Seminar.
25-27 . . . AFS-F.E.F. Penn State Regional Foundry Conference, Pennsylvania State University, University Park, Pa. Sponsors: Rochester, Pittsburgh, Metropolitan, Eastern New York, Western New York, Northwestern Pennsylvania, Central New York, Chesapeake, Philadelphia Chapters; Reading Foundrymen's Association; Conestoga Foundrymen's Association; Penn State University Student Chapter.
26 . . . AFS Exhibits Committee 1959-60, Chicago.

JULY

20 . . . T&R Trustees, Annual Meeting, Chicago.
21-22 . . . AFS Finance Committee, Annual Budget Meeting, Chicago.

AUGUST

6 . . . AFS Executive Committee, Special Meeting, Chicago.
6-7 . . . AFS Board of Directors, Annual Meeting, Chicago.

Chapter News

afs chapter meetings

NOVEMBER						
S	M	T	W	T	F	S
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

NOVEMBER

Birmingham District . . Nov. 14 . . Thomas Jefferson Hotel, Anniston, Ala. . . L. E. Wile, Pangborn Corp., "Selection of Foundry Sands."

British Columbia . . Nov. 21 . . Leon's, Vancouver, B. C. . . D. L. Colwell, Apex Smelting Co., "Die and Permanent Mold Casting."

Canton District . . Nov. 6 . . American Legion Hall, Massillon, Ohio . . D. E. Krause, Gray Iron Research Institute, "Research in the Foundry."

Central Illinois . . Nov. 3 . . American Legion Hall, Peoria, Ill. . . University of Illinois Student Chapter Night and Link-Belt Foundry Film.

Central Indiana . . No Meeting Due to Purdue Metals Casting Conference Oct. 30-31.

Central Michigan . . Nov. 19 . . Hart Hotel, Battle Creek, Mich. . . W. E. Jones, Josam Mfg. Co., "Hidden Costs in the Foundry."

Central New York . . Nov. 14 . . Carrier Corp., Syracuse, N.Y. . . S. C. Massari, AFS, "Castings Economics & Design." . . Nov. 29 . . Drumlines Country Club Syracuse, N. Y. . . Ladies' Night.

Central Ohio . . Nov. 10 . . Seneca Hotel, Columbus, Ohio . . W. O. Vedder, Pangborn Corp., "Blast and Shot Cleaning."

Chesapeake . . Nov. 28 . . Engineers' Club, Baltimore, Md.

Chicago . . Nov. 3 . . Chicago Bar Association, Chicago . . Gray Iron, Steel & Malleable Group: H. Felten, Peoria Malleable Castings Co., "Practical Scrap Control"; Non-Ferrous Group: M. Oswald, National Bearing Div., American Brake Shoe Co.; R. Buchhaass, Faunt Foundry Co.; W. Zoeller, Standard Castings Corp.; & R. F. Dalton, Howard Foundry Co., "Foundry Scrap Causes & Cures"; Pattern Group: Z. Madacey, Beardsley & Piper Div., Pettibone Mulliken Corp., "Core Blowing"; Maintenance Group: N. Hartley, Hayco Controls Corp., "Moisture Control on Sand." Robert E. Kennedy Scholarship Award.

Cincinnati District . . Nov. 10 . . Elks City Club, Hamilton, Ohio . . J. A. Westover, Westover Engineers, "Time and Motion Study Applications for the Foundry."

Connecticut . . Nov. 25 . . Waverly Inn, Cheshire, Conn. . . L. W. Greenslade, Brown & Sharpe Mfg. Co., "Gating of Castings."

Detroit . . Nov. 20 . . Hotel Wolverine, Detroit . . D. S. Harder, Ford Motor Co., *Management Night and Joint Meeting with Ontario Chapter* . . Nov. 29 . . Glen Oaks Country Club, Detroit . . Annual Christmas Party.

Eastern Canada . . Nov. 14 . . Sheraton Mt. Royal Hotel, Montreal, Que. . . H. Kreutz, Dominion Engineering Co., Ltd., Robert Stott, Canadian Steel Foundries, Ltd., "Estimates & Cost Analysis of Castings." "Bring Your Boss Night."

Eastern New York . . Nov. 18 . . Pannetta's Restaurant, Menands, N. Y. . . A. H. Homberger, International Automation Corp., *Film: The Buhner Automated Molding & Pouring Method.*

Metropolitan . . Nov. 3 . . Essex House, Newark, N. J. . . C. A. Sanders, American Colloid Co., "What European Foundries Are Doing."

Mexico . . Nov. 17 . . Ave. Chapultepec 412, Mexico D. F. . . R. O. Calderon, Herramientas-Mexico, "Heat Treatment Proceedings."

Michiana . . Nov. 10 . . Club Normandy, Mishawaka, Ind. . . Non-Ferrous: R. Cochran, R. Lavin & Sons, Inc., "Causes & Correction of Casting Defects"; Ferrous: T. E. Barlow, Eastern Clay Products Dept., International Minerals & Chemical Corp., "Synthetic Sands for Ferrous Foundry Operations."

Mid-South . . Nov. 7 . . Claridge Hotel, Memphis, Tenn. . . C. A. Sanders, American Colloid Co., "Exploring Moulding Sand in Your Foundry."

Mo-Kan . . Nov. 7 . . Fairfax Airport, Kansas City, Kans.

New England . . Nov. 12 . . University Club, Boston . . L. W. Beebe, Ingersoll-Rand Co., "Are You Losing Money on Your Portable Tools?"

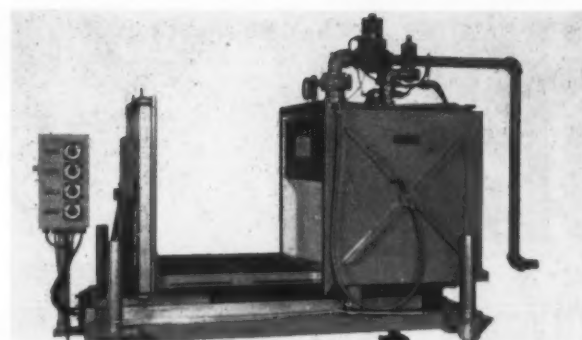
Northeastern Ohio . . Nov. 13 . . Tudor Arms Hotel, Cleveland . . Pcnel: "Modern Inspection Techniques."

Northern California . . Nov. 17 . . Spenger's Fish Grotto, Berkeley, Calif. . . D. L. Colwell, Apex Smelting Co., "Die and Permanent Mold Casting."

Northern Illinois & Southern Wisconsin . . Nov. 11 . . Beloit Country Club, Beloit, Wis. . . D. Matter, Ohio Ferro Alloys Corp., "Nodular Iron."

Northwestern Pennsylvania . . Nov. 24 . . Amity Inn, Erie, Pa. . . R. B. Sinclair, Meehanite Metal Corp., "Break-Even Charts & Profit Planning."

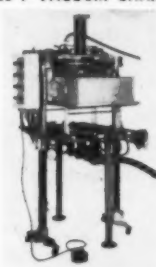
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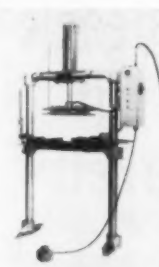
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Circle No. 268, Page 7-8

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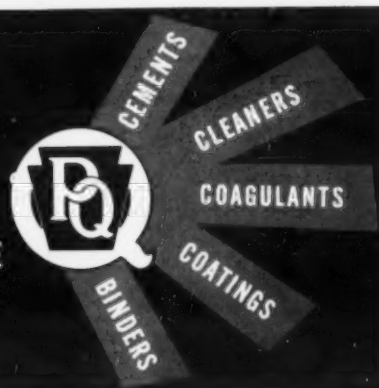
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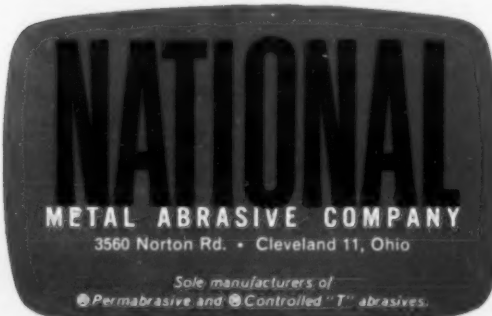
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Circle No. 253, Page 7-8

Chapter Meetings

Continued from page 61

Ontario . . . Nov. 20 . . . Hotel Wolverine,
Detroit . . . Joint Meeting with Detroit
Chapter.

Oregon . . . Nov. 19 . . . Heathman Hotel,
Portland, Ore. . . D. L. Colwell, Apex
Smelting Co., "Die and Permanent Mold
Castings."

Philadelphia . . . Nov. 14 . . . Engineers'
Club, Philadelphia . . . Z. Madacey,
Beardsley & Piper Div., Pettibone Mul-
liken Corp., "Coremaking."

Piedmont . . . Nov. 7 . . . John Marshall
Hotel, Richmond, Va. . . D. L. LaVelle,
American Smelting & Refining Co.,
"Aluminum Casting Defects & Their Cor-
rection."

Pittsburgh . . . Nov. 17 . . . Hotel Webster
Hall, Pittsburgh, Pa. . . Round Table
Discussion on Steel.

Quad City . . . Nov. 17 . . . LeClaire Hotel,
Moline, Ill. . . E. E. Braun, Central
Foundry Div., GMC, "A New Approach
to Marketing Castings."

Rochester . . . Nov. 11 . . . Manger Hotel,
Rochester, N. Y. . . H. H. Kessler, Sorbo-
Mat Process Engineers, "Gating & Riser-
ing."

Saginaw Valley . . . Nov. 6 . . . Fischer's
Hotel, Frankenmuth, Mich. . . Ferrous
Group: H. H. Wilder, Vanadium Corp.,
"Practical Inoculation of Gray Iron";
Non-Ferrous Group: J. Chini, Sperry
Gyroscope Co., "High Quality Molding
Processes"; Steel Group: H. F. Bishop,
Exomet, Inc., "Gating & Riser-
ing of Steel"; Permanent Mold & Die Casting
Group: J. Atols, Atols Tool & Mold
Corp., "Shaw Process."

St. Louis District . . . Nov. 13 . . . Edmond's
Restaurant, St. Louis . . . M. H. Horton,
Deere & Co., "Shell Cores."

Southern California . . . Nov. 14 . . . Rodger
Young Auditorium, Los Angeles . . . D. L.
Colwell, Apex Smelting Co., "Die and
Permanent Mold Casting."

Tennessee . . . Nov. 28 . . . Hotel Patten,
Chattanooga, Tenn. . . W. E. Jones,
Josam Products Foundry Co., "Corerom
Management."

Texas . . . Nov. 14 . . . Longview Hotel,
Longview, Texas . . . J. E. Reedy, Hill
& Griffith Co., "Corerom Practice."

Texas, San Antonio Section . . . Nov. 24
. . . San Antonio Machine & Supply
Co., San Antonio, Texas.

Timberline . . . Nov. 10 . . . Oxford Hotel,
Denver, Colo. . . I. G. Robinson, Lester
B. Knight & Associates, "Incentives in the
Foundry & their Application."

Toledo . . . Nov. 5 . . . Heather Downs
Country Club, Toledo, Ohio . . . E. E.
Braun, Central Foundry Div., GMC, "A
New Approach to Marketing Castings."

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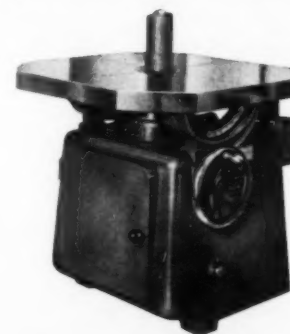
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Circle No. 274, Page 7-8

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Circle No. 256, Page 7-8

Tri-State . . . Nov. 14 . . . Bartlesville,
Okla. . . R. Brown, "Patternmaking."

Twin City . . . Nov. 18 . . . Jax Restaurant,
Minneapolis . . . F. G. Emrich, Schleh
Associates, Inc., "Results Management."
Joint Meeting with American Society
for Metals.

Utah . . . Nov. 12 . . . Covey Hot Shoppes,
Salt Lake City . . . D. L. Colwell, Apex
Smelting Co., "Die and Permanent Mold
Castings."

Washington . . . Nov. 20 . . . Engineers'
Club, Seattle . . . D. L. Colwell, Apex
Smelting Co., "Die and Permanent Mold
Casting."

Western Michigan . . . Nov. 3 . . . Elks
Club, Ludington, Mich.

Western New York . . . Nov. 7 . . . Sheraton
Hotel, Buffalo, N. Y. . . O. J. Myers,
Reichhold Chemicals, Inc., "Self Curing
Oils."

Wisconsin . . . Nov. 14 . . . Schroeder
Hotel, Milwaukee . . . Sectional Meeting.

DECEMBER

Birmingham District . . . No Meeting.

Canton District . . . Dec. 4 . . . Mergus
Restaurant, Canton, Ohio. . . H. J. Web-
er, AFS, "Recent Air Pollution Legisla-
tion Affecting Foundries."

Central Illinois . . . Dec. 13 . . . Ameri-
can Legion Hall, Peoria, Ill. . . Annual
Christmas Party.

Central Indiana . . . Dec. 1 . . . Athenae-
um Turners Hall, Indianapolis . . . W.
Levi, Lynchburg Foundry Co.,
"What You Should Know About Cu-
pola Operation."

Central Ohio . . . Dec. 8 . . . Seneca
Hotel, Columbus, Ohio . . . F. S. Catlin,
Magnaflux Corp.

Chesapeake . . . Dec. 5 . . . Engineers' Club,
Baltimore, Md. . . G. O. Pfaff, Wheel-
abrator Corp., "Reducing Blast Cleaning
Costs."

Chicago . . . Dec. 1 . . . Chicago Bar
Association, Chicago . . . Gray Iron
Group: D. Matter, Ohio Ferro Alloys
Corp., "The Role of Ductile Iron in
the Foundry Industry"; Non-Ferrous
Pattern Group: J. Biele, Illinois Precise
Casting Co., "Investment Castings";
Steel, Maintenance Group: H. F. Bish-
op, Exomet, Inc., "Design, Gating &
Rising Problems Related to X-ray or
Magnaflux Standards."

Cincinnati District . . . Dec. 20 . . . Neth-
erland Plaza Hotel, Cincinnati . . .
Christmas Dinner Dance.

Eastern Canada . . . Dec. 12 . . . Mount
Royal Hotel, Montreal, Que. . . Round
Table Discussion Groups, Steel, Non-
Ferrous & Cast Iron.

Continued on page 64

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Circle No. 254, Page 7-8

November 1958 • 63

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Circle No. 257, Page 7-8

Chapter Meetings

Continued from page 63

Eastern New York . . . Dec. 16 . . .
Panetta's Restaurant, Menands, N. Y.
. . . Annual Christmas Party.

Metropolitan . . . Dec. 12 . . . Essex
House, Newark, N. J. . . Annual Christmas Party.

Michiana . . . Dec. 8 . . . Club Normandy,
Mishawaka, Ind. . . R. W. Slack, Federal Machinery Sales Co., "Use of Plastics in the Foundry."

Northeastern Ohio . . . Dec. 5 . . . Tudor
Arms Hotel, Cleveland . . . Christmas Stag Party.

Northern Illinois & Southern Wisconsin . . . Dec. 6 . . . Faust Hotel,
Rockford, Ill. . . Annual Christmas Party.

Northwestern Pennsylvania . . . Dec. 6 . . .
Siebenbuerger's Club, Erie, Pa. . . Annual Christmas Party.

Ontario . . . Dec. 12 . . . Royal Con-
naught Hotel, Hamilton, Ont. . . W. B. Bishop, Archer-Daniels-Midland Co., "Which Core Process?"

Oregon . . . No Meeting.

Philadelphia . . . Dec. 11 . . . Sheraton
Hotel, Philadelphia . . . Annual Christmas Party.

Piedmont . . . No Meeting.

Quad City . . . Blackhawk Hotel,
Davenport, Ia. . . Annual Christmas Party.

Rochester . . . Dec. 2 . . . Manger Hotel,
Rochester, N. Y. . . H. J. Weber, AFS, "Occupational Loss of Hearing Due to Noise—A New Foundry Problem."

Saginaw Valley . . . Dec. 4 . . . Fischer's
Hotel, Frankenmuth, Mich. . . S. C. Massari, AFS, "Structure and Physical Properties of Metals."

St. Louis District . . . Dec. 11 . . . Ed-
mond's Restaurant, St. Louis . . . A. H. Homberger, International Automation Corp., "The Buhner Automated Molding & Pouring Method."

Southern California . . . Dec. 12 . . .
Rodger Young Auditorium, Los Angeles . . . "Foundry Education in the School."

Tennessee . . . No Meeting.

Texas . . . Dec. 5 . . . College Station,
Texas . . . J. H. Kimes, Lufkin Foundry & Machine Co., "Ferrous Metallurgy," with Student Chapter of Texas A & M as Hosts.

Toledo . . . Dec. 3 . . . Heather Downs
Country Club, Toledo, Ohio . . . H. Von Wolff, Shalco Engineering Corp., "Shell Molding & Coremaking."

Twin City . . . Dec. 13 . . . Calhoun Beach
Hotel, Minneapolis . . . Annual Christmas Party.

Utah . . . Dec. 3 . . . Covey Hot Shoppes,
Salt Lake City . . . A. Dorfmueller, Jr., Archer-Daniels-Midland Co., Federal Foundry Supply Div.

Western Michigan . . . Dec. 1 . . . Bill
Stern's Restaurant, Muskegon, Mich. . . C. A. Sanders, American Colloid Co., "Some Causes of Scrap."

Western New York . . . Dec. 5 . . . Hotel
Sheraton, Buffalo, N. Y. . . H. Von Wolff, Shalco Engineering Corp., "Development of Shell Core Process."

product report . . .

Self-dumping hoppers are used for temporary storage of charging materials, enabling Greenlee Brothers & Co., Rockford, Ill., to service two cupolas from one charging station. From a weigh hopper on the charging platform, 14 ft above the materials yard, metal for a charge is dropped into a self-dumping hopper,



positioned on a fork-lift truck.

The hopper, manufactured by Roura Iron Works, Inc., Detroit, is then carried to a second station where limestone and coke are added. The charge is transported to storage where as many as 20 hoppers are lined up, ready for dumping into the bottom-drop charging



buckets at the cupolas. The fork truck lifts the hopper over the bucket, a latch is released, and the charge is dumped. After dumping, hopper rights itself and locks back into place. As the charging bucket is raised to charge the cupola, the hopper is returned to the weigh station for another load.

For Manufacturer's Information
Circle No. 303, Page 7-8

the **SHAPE** of things

safety, hygiene, air pollution

by HERBERT J. WEBER



Does Ductile Iron Stink?

I recently received an inquiry from a member foundry about the odor produced when workmen machine ductile iron. The machinists complained of an objectionable odor from a gas or vapor apparently produced during the machining process.

A similar complaint was lodged with the U. S. Public Health Service back in 1955 with a request to investigate the odor. The Service then became interested in any tests or determinations that had been made in shops working ductile iron. Since these complaints may begin to increase, I thought it would be well to outline, here, the information which I have been able to get on the subject.

The normal residual magnesium in ductile iron after inoculation is about 0.07 per cent with a maximum of 0.10 per cent. When newly machined surfaces or fresh fractures of ductile iron come in contact with moisture, an odor similar to that of commercial acetylene is produced. If the grinding or machining is done with moisture-free cutting oils, no odor is produced.

Traces of residual magnesium in the iron may be present as magnesium carbide which will react with moisture to produce acetylene.

Acetylene of itself is odorless but the odor noticed is due to the presence of impurities such as hydrogen sulphide, arsine and phosphine.

While phosphorous is purposely kept low (0.10 per cent maximum) in the production of ductile iron, it is possible that traces of hydrogen phosphide (phosphine) are formed.

Phosphine is colorless irritating gas with a repulsive smell like that of rotten fish. In spite of its high toxicity, there have been relatively few reports of poisoning because it is usually produced accidentally and only in trace amounts. The cases reported have come from the intended production of pure phosphine in the laboratory or from the use of zinc phosphide as a rat poison.

The health effects on man are similar to those of arsine and the usual first symptoms of poisoning are loss of appetite and great thirst. The

maximum concentration that can be tolerated for several hours without symptoms is 7 parts of phosphine per million parts of air.

Considering that only a very small amount of phosphorus (0.10 per cent maximum) is shown by chemical analysis to be present in ductile iron, the small amount of phosphine carried off together with the small amount of acetylene formed could hardly produce a concentration anywhere near 7 parts per million.

Insofar as I know, no one has quantitatively determined the amount of phosphine liberated. To detect such traces would require methods far more sensitive than the usual titration analysis.

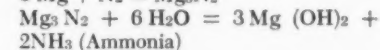
At any rate you can eliminate the problem—if you have one—by grinding or machining under oil. And you can help someone else if you will report any of your own experiences with the odor.

Incidentally, given the right conditions, gray iron will also give off an acetylene odor when fractured or machined—especially if given a late inoculation of calcium silicide.

I might point out, too, that ammonia fumes are sometimes given off when a drum of magnesium alloy is first opened in the foundry. This is caused by the reaction of magnesium nitride with water to form magnesium hydroxide and ammonia. Magnesium nitride is produced by the reaction of magnesium with nitrogen in the closed drum during shipment.

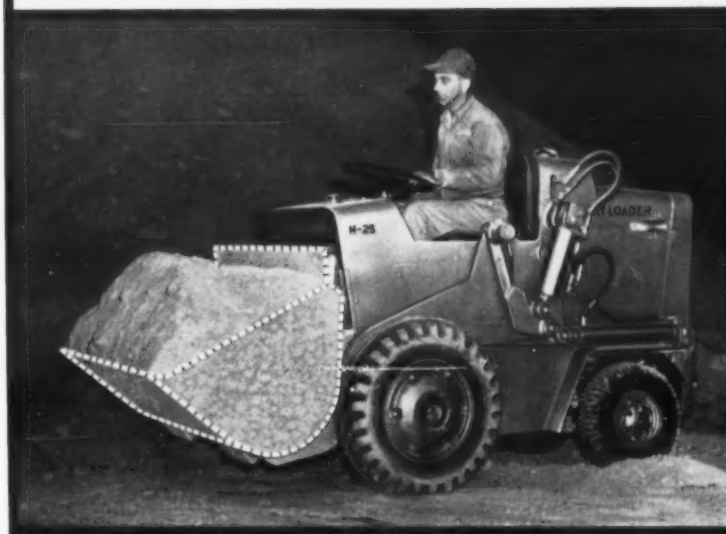
The trace of ammonia vapor will not cause injury to health.

For those interested, the chemical reactions may be expressed as follows:



MORE FACTS on all products, literature, and services shown in the advertisements and listed in Products & Processes and in For the Asking can be obtained by using the handy Reader Service cards, page 7-8.

It's not bucket SIZE...



It's the weight of the load that determines capacity

BUYING A TRACTOR-SHOVEL on a *bucket volume* basis, without knowing the unit's carry capacity in pounds puts the cart before the horse... you may get too much bucket (or not enough) to handle *your* material most efficiently.

Buying on the basis of *lifting capacity* is equally misleading since any unit can lift much more than it can carry. It's the pounds that can be moved safely at normal speeds, in relation to the weight of the material to be handled that determines proper bucket size.

MORE POUNDS PER LOAD—the 2500-lb. *carry capacity* rating of the new model H-25 "PAYLOADER" is equal to 40% of the total machine weight. It represents a *new high* in capacity-to-weight ratio for tractor-shovels of this class.

MORE LOADS PER SHIFT—not only does the H-25 handle a bigger load for its size and weight, but it has the speed, maneuverability and ease of operation to move more loads per shift. These features make this *extra production* possible: 2-speed, full reversing power shift transmission with matching torque converter, power steer, power transfer differential, closed hydraulic system, triple air cleaners, major pivot points sealed and 40° bucket tip back.

It will pay you to have a Hough Distributor demonstrate how the H-25 "PAYLOADER" can handle more tonnage at lower cost. Ask about Hough Purchase and Lease Plans too.

THE FRANK G. HOUGH CO. 11-A-2
711 Sunnyside Ave., Libertyville, Illinois
Send complete data on the new H-25 "PAYLOADER"

Name.....
Title.....
Company.....
Street.....
City..... State.....

HOUGH

THE FRANK G. HOUGH CO.
LIBERTYVILLE, ILLINOIS
SUBSIDIARY — INTERNATIONAL HARVESTER COMPANY

Circle No. 258, Page 7-8

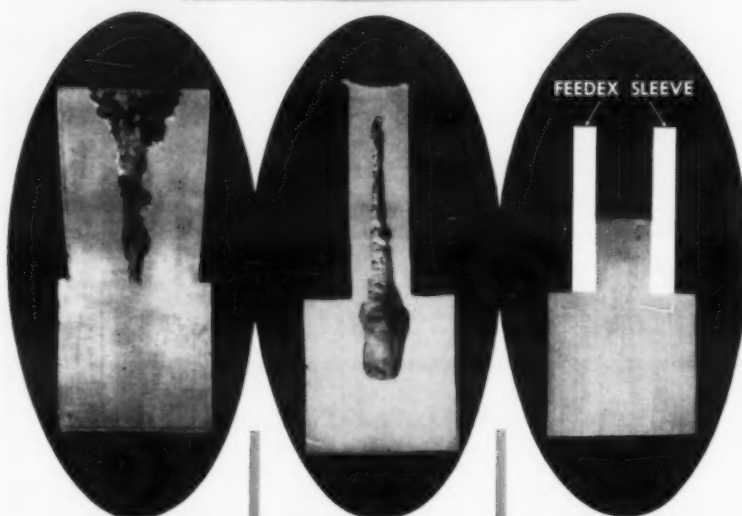
- Eliminate Shrinkage
- Increase Casting Yield

with

Foseco® FEEDEX®

... for all steel, iron, light and non-ferrous alloys

THIS IS FEEDEX EFFICIENCY



Casting produced using a normal riser without Feedex.

Casting produced using a reduced riser without Feedex.

Casting produced using a reduced riser and Feedex sleeve. (Note sound casting, savings to be made in metal and cleaning costs.)

Factory-tested Feedex offers you these advantages —

- eliminates shrinkage
- reduces cleaning costs
- reduces scrap
- can be molded to any shape
- aids directional solidification
- keeps feed metal molten longer
- permits reduction in riser size — more castings from each heat
- does not alter properties of the metal

Prefabricated Feedex Sleeves are available in a wide range of sizes and can also be supplied to your own special requirements.

FOUNDRIY SERVICES, INC.

2000 BRUCK STREET

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In Canada: FOUNDRY SERVICES (CANADA) LTD., 201-7 Alice St., Guelph, Ontario



Send this coupon for free leaflet giving all the facts about how you can increase feeding efficiency with FEEDEX.

Name _____
Company _____
Address _____
City _____ State _____

Circle No. 259, Page 7-8

foundry trade news

NATIONAL METALLURGICAL LABORATORY . . . Jamshedpur, India, will hold a Symposium on *Iron and Steel Industry* in India, Feb. 4-7, 1959. Invitations are being extended to technologists, metallurgists and research scientists in India and abroad to attend in person and contribute technical papers for discussion. Symposium will be held at National Metallurgical Laboratory.

ARMOUR RESEARCH FOUNDATION . . . of Illinois Institute of Technology dedicated a \$1,200,000 addition to the metals research building. This will more than double the amount of previous space available for metals projects, according to Dr. D. J. McPherson, manager of metals research. The original building will be devoted to pilot plant and other large-scale operations, including weld-

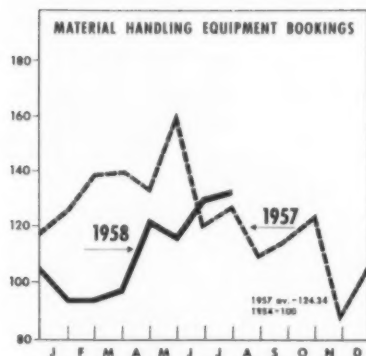
ing, foundry and steelmaking and metallurgical processes. The new addition will be used for research sections of electrochemistry, and applied, power, reactor, physical, and non-ferrous metallurgy.

NON-FERROUS FOUNDERS' SOCIETY . . . Cleveland, has elected the following men to office in the Cleveland Management Group for the year 1958-1959: Bill Gluntz, Jr., president; W. O. Larson, vice-president; Dave Kennedy, treasurer, Eugene Hervey, secretary; Ben Weimer, adviser and Al Newman, adviser.

THE MATERIALS HANDLING INSTITUTE, INC., . . . Pittsburgh, Pa., reports bookings of industrial material handling equipment manufacturers show an upward trend for the second straight month. This industry



International Minerals & Chemical Corp., . . . Skokie, Ill., held open house in the administrative and research center when it formally opened the \$5 million center. More than 3000 guests from the Chicago area attended. Louis Ware, IMC board chairman described the building as "a symbol of IMC's first half century of progress and an appropriate setting for future growth." The center comprises five buildings fronting on a central plaza with a patio and reflecting pool. The heliport, located atop its administration building, puts the city's major airports only minutes away. There are 600 employees at the new center of International which is a leader in the mining, refining and processing of non-metallic ores and chemical derivatives with 68 mines and plants and a product list that totals 60 items. Skokie, Ill., is located northwest of Chicago.



The MATERIAL HANDLING INSTITUTE, INC., Pittsburgh, reports these monthly bookings from figures supplied by the Association of Lift Truck and Portable Elevator Manufacturers, Conveyer and Floor Truck Manufacturers' Association, Conveyer Equipment Manufacturers' Association, The Industrial Truck Association, Material Manufacturers' Association.

	1954	1955	1956	1957	1958
January	93.34	91.48	113.48	126.34	93.07
February	94.43	95.71	129.58	139.39	93.43
March	115.53	109.15	144.14	146.78	97.89
April	125.79	109.53	145.39	135.47	125.34
May	98.34	115.41	133.53	137.95	118.94
June	113.43	130.88	139.13	121.57	120.13
July	91.48	111.79	143.88	138.51	124.34
August	94.00	106.58	140.79	115.99	
September	88.43	134.96	133.51	114.79	
October	93.41	138.53	143.38	134.85	
November	88.00	118.99	138.58	87.88	
December	105.49	139.85	117.79	105.53	

showed signs of recovery last Feb. after experiencing a slide-off in business for several months. The dollar volume of business reported presently is 134.34 using 100 as the monthly average for the statistical base year 1954. This is an increase of 3.19 over bookings reported in June. Summer months normally show a decline in this field but this summer has seen the reverse of that trend.

BUSINESS WEEK . . . New York, reports a modest sales upturn in machinery industry and states economists are watching each sales-chart jiggle as this is where first signs of any new upsurge in capital spending are expected to appear. Survey of machinery companies found mounting orders have changed glumness to temperate optimism supported by hard facts of increased orders. Of five major groups, makers of pumps and compressors are in first place; makers of motors and generators, mining machinery and machine tools follow with oil-field machinery and tools last.

Information received from the National Foundry Association discloses: **McCarthy Foundry**, Chicago, has closed its doors. **City Pattern & Foundry**, Detroit, has been sold to **Orrinduff & Kapel Tool & Development Co.** The **Cottrell Co.**, Westerly, R. I. permanently closed its captive foundry. **Waterbury Farrel Foundry & Mach. Co.**, Waterbury, Conn., will be sold to **Textron Inc.**, Providence, R. I. but will be scheduled to operate as a Textron division with **Dale Mitchell** continuing as executive head. **Dotson Co.**, Mankato, Minn., has been absorbed

Continued on page 77

YOU CAN'T HELP BUT
CUT COSTS...
when "SEMI-STEEL"
STEEL TYPE ABRASIVES
COST YOU ONLY
\$155.00
PER TON
in 50 or 100 lb. bags, palletized if desired

FREE LAB TEST
Send us 200 gr. of your steel shot. We'll test it against "SEMI-STEEL" and report the results. Or, we'll send samples of "SEMI-STEEL" for testing in your own lab. (Give size.) Either way, you'll get welcome proof of "SEMI-STEEL" savings.

METAL BLAST, INC.
873 EAST 67th STREET
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Beach wear
by Jantzen

"SEMI-STEEL" performance compares so favorably with that of regular, high grade steel shot that, considering you pay only \$155 per ton, you just can't help but reduce your cleaning costs. And, we'll give you a *written guarantee* that you will!

"SEMI-STEEL" is a newly developed abrasive with marked steel shot characteristics, produced by a new process so efficiently that it can be sold at extremely low prices. It's manufactured as shot and grit, to S.A.E. specifications.

Why continue paying so much for steel shot when "SEMI-STEEL" costs so little and is guaranteed to save you money? Phone or write for further information and samples.

for the asking

**Build an idea file for plant improvements.
Reader Service Cards, page 7-8
will bring more information . . .**

Refractory brick . . . and other shapes for industry is subject of 24-p booklet. Wealth of information, including temperature conversion chart. *Norton Co.*
Circle No. 136, Page 7-8

Cupola equipment . . . which officials claim result in substantial coke savings, described in 4-p bulletin. *Brown Thermal Development Co.*
Circle No. 137, Page 7-8

Palletization program . . . through use of industrial trucks discussed in foundry case histories form. *Elwell-Parker Electric Co.*
Circle No. 138, Page 7-8

Stock roller conveyors . . . covered in bulletin containing many specifications, illustrations and line drawings giving dimensions. *Logan Co.*
Circle No. 139, Page 7-8

Cobalt . . . and its alloys is subject of reference book. Information on this publication is available. *Cobalt Information Center.*
Circle No. 140, Page 7-8

Spectrochemical analyzers . . . are presented in illustrated brochure with applications listed. *Applied Research Laboratories, Inc.*
Circle No. 141, Page 7-8

Plant facilities . . . and diversified products of manufacturer of automation equipment pictorially presented in booklet. *Fischer & Porter Co.*
Circle No. 142, Page 7-8

Locate conveyor troubles . . . with handy pocket-sized slide card affording methods for pinpointing trouble and listing cures. *United States Rubber Co.*
Circle No. 143, Page 7-8

Gate valves . . . and their automatic controls detailed in data sheets available when you circle number below. *Vacuum Research Co.*
Circle No. 144, Page 7-8

Dynamometer . . . combines accuracy with portability to indicate torque, weight, tension and traction compression. *W. C. Dillon & Co.*
Circle No. 145, Page 7-8

Sand binder . . . formulated material which gives foundrymen a means of bonding sand without use of water, explained in brochure. Uses oil and

catalyst. *Baroid Div., National Lead Co.*
Circle No. 146, Page 7-8

Drafting standards . . . for microfilmed engineering drawings, for report circle below. *Filmsort Co.*
Circle No. 147, Page 7-8

Sound protection . . . devices which keep harmful noises from the inner ear are demonstrated in brochure. *American Optical Co.*
Circle No. 148, Page 7-8

High-strength aluminum alloy . . . covered in report emphasizing properties and aging practices. *Kaiser Aluminum & Chemical Sales, Inc.*
Circle No. 149, Page 7-8

Plastic steel . . . bulletin offers complete coverage on its chemical and physical properties, and case histories of its application. *Devcon Corp.*
Circle No. 150, Page 7-8

Caster wheels . . . described in booklet covering pallet wheel, lift truck wheel and caster wheel; tables of specifications. *Divine Brothers Co.*
Circle No. 151, Page 7-8

Rubberized abrasives . . . catalog describes abrasives for deburring, smoothing and polishing. Use circle number below. *Cratex Mfg. Co.*
Circle No. 152, Page 7-8

Clamping tools . . . catalog acquaints reader with application, construction, specification and price data on over 400 items. *Wilton Tool Mfg. Co.*
Circle No. 302, Page 7-8

Environmental testing . . . facilities at laboratory described and illustrated in brochure. *Bowser-Morner Testing Laboratories, Inc.*
Circle No. 153, Page 7-8

Tool room equipment . . . designed by tool makers are fully described in catalog. *Montgomery & Co.*
Circle No. 154, Page 7-8

Metal-ceramics . . . for use in high-temperature operations where most metals or ceramics alone are insufficient, officials state; 12-p brochure. *Haynes Stellite Co.*
Circle No. 155, Page 7-8

Ventilating units . . . specifications listed in brochure. *General Blower Co.*
Circle No. 303, Page 7-8

Sand recovery . . . system, pneumatic, outlined in 4-p bulletin. *National Engineering Co.*
Circle No. 156, Page 7-8

Credit and collection . . . controls for small marketers is subject of government bulletin. *Small Business Administration.*
Circle No. 157, Page 7-8

Flame cutting . . . equipment can be used interchangeably with every fuel gas combination. Circle number below for 6-p folder. *Linde Co.*
Circle No. 158, Page 7-8

Cost Control . . . pointers are listed and discussed in bulletin. *Small Business Administration.*
Circle No. 159, Page 7-8

Flow filters . . . for filtration of various industrial oils are fully described in bulletin. *Hilliard Corp.*
Circle No. 160, Page 7-8

Refractory maintenance . . . and specifications for firebrick are outlined on technical data card. Use circle number below. *Refractory Div., Babcock & Wilcox Co.*
Circle No. 161, Page 7-8

Sand conditioning . . . mixing-mulling machines presented in well-illustrated booklet. *National Engineering Co.*
Circle No. 162, Page 7-8

Expansion scabs . . . source and prevention is discussed in newsletter. Also wood flour cost sheet. *American Colloid Co.*
Circle No. 163, Page 7-8



Reduce Scrap Losses!

Cut corners on production costs! That, according to the experts, is what enables the non-ferrous foundry to compete even under today's conditions.

Make less scrap, for instance . . . refuse to waste profits on cold-shuts and misruns . . . check molten metal temperatures carefully and frequently!

That's the way the alert foundries are doing today, and Marshall Enclosed-Tip Thermocouples are helping them. With Marshall Thermocouples, the foundryman checks his metal temperatures quickly and accurately. He pours castings at right temperatures, thus reducing scrap losses and assuring a sound, quality output. Write for data. L. H. Marshall Co., 270 W. Lane Ave., Columbus 2, Ohio.



ENCLOSED-TIP THERMOCOUPLES

**Photo. Courtesy
Jeffrey Mfg. Co.**

Circle No. 261, Page 7-8

AJAX LO-VEYORS

are cutting costs



AJAX Open Pan Lo-Veyor

Plant layout men know that materials flow lines are never a static affair. That's why more and more AJAX LO-VEYORS are being used to give maximum flexibility to operations in large plants and small plants, indoors and outdoors.

AJAX LO-VEYORS are compact, self-contained units that can be suspended from ceilings, along walls, under or at floor levels, giving maximum flow capacity in limited space. They can be quickly and easily installed and or relocated with a minimum of cost and production down time.

AJAX LO-VEYORS in open and closed pan and tubular types meet every requirement of tonnage, speed, sanitation, abrasive and explosive conditions.

Write the factory TODAY for Bulletin No. 39 and name of your nearby AJAX Representative.



AJAX-Shaler-Shaker Drive

AJAX Closed Pan Lo-Veyor

AJAX Tubular Lo-Veyor

AJAX FLEXIBLE COUPLING CO. INC.
WESTFIELD, N. Y.

Circle No. 264, Page 7-8

casting through the ages

FOUR CANNON CONSTITUTED THE ENTIRE TRAIN OF FIELD ARTILLERY POSSESSED BY THE BRITISH COLONIES IN NORTH AMERICA AT THE BEGINNING OF THE REVOLUTIONARY WAR!

AS EARLY AS THE CHOU DYNASTY (1122-225 B.C.), THE CHINESE WERE COLLECTING TRIBUTE IN THE FORM OF TIN AND COPPER — APPARENTLY TO KEEP FOUNDERS SUPPLIED WITH MATERIALS FOR THEIR FINE BRONZE CASTINGS.

Odd Bits SO RARE WERE CAST IRON POTS AMONG THE EARLY COLONISTS OF NEW ENGLAND, THAT THE FEW WHO OWNED THEM PRIZED THEM HIGHLY. BEQUEATHING AN IRON POT WAS CONSIDERED A MARK OF HIGH ESTEEM.

WHEN NOT CASTING BELLS, THE EARLY BELL FOUNDERS OF MEDIAEVAL EUROPE (REALLY FOUNDRY MEN-SMITHS) SPENT THEIR TIME TURNING OUT TOOLS, HOUSEHOLD UTENSILS, ARMOR AND WEAPONS.

Rollover draw . . . and jolt rollover draw machines discussed, with specifications listed in 8-p booklet. *Beardsley & Piper Div., Pettibone Mulliken Corp.*
Circle No. 164, Page 7-8

Sealing material . . . said to be unaffected by extreme temperatures, expansion or contraction, explained in brochure. *Stonhard Co.*
Circle No. 165, Page 7-8

Sand muller . . . construction, application and advantages covered in 24-p bulletin detailing product with photographs and line drawings. *Beardsley & Piper Div., Pettibone Mulliken Corp.*
Circle No. 166, Page 7-8

Pressure-vacuum controls . . . catalog presents descriptive data and specifications. *United Electric Controls Co.*
Circle No. 167, Page 7-8

Silica sand . . . brochure offers pictorial tour of mining to shipping operation. Also chemical analysis and fineness grades listed. *Wedron Silica Co.*
Circle No. 168, Page 7-8

Precision drills . . . catalog, 40 pp, is said to offer simplified system of pricing complete drill line. *Precision Twist Drill & Machine Co.*
Circle No. 169, Page 7-8

Investment casting . . . process fully explained in 2-p brochure, together with description of company's investment casting facilities. *Alloy Steel Casting Co.*
Circle No. 170, Page 7-8

Oven . . . features circular design claimed to offer uniform temperatures with no hot spots or cold corners. Temperatures to 482 F. *Hevi-Duty Electric Co.*
Circle No. 171, Page 7-8

Barrel finishing . . . machine fully explained in brochure. Gives specifications, operation and construction. *Globe Div., Casalbi Co.*
Circle No. 172, Page 7-8

Safety . . . off the job for elderly people is subject of informative booklet. Many illustrations of safety hints. *National Safety Council.*
Circle No. 173, Page 7-8

Heat transfer chain . . . said to provide up to one-third more heat transfer surface is illustrated in brochure. *Allis-Chalmers Mfg. Co.*
Circle No. 174, Page 7-8

Box dump attachment . . . for fork trucks announced in catalog sheet. Capacities from 2000-10,000 lb. *Ehwell Parker Electric Co.*
Circle No. 175, Page 7-8

Vibratory handling . . . of bulk materials is subject of 64-p catalog listing products for various bulk materials handling operations. *Syntron Co.*
Circle No. 176, Page 7-8

Self-dumping hoppers . . . illustrated described in brochure. Capacities, 1/2-2 cu yd. *Apex Welding & Fabricating Corp.*
Circle No. 177, Page 7-8

THESE FINE FANNER REPRESENTATIVES ARE AT YOUR SERVICE

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Hill & Griffith Co.
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Birmingham, Ala.

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Los Angeles 58, Calif.
Pacific Graphite Co.,
2522 Malt Avenue
Los Angeles, Calif.

Pacific Graphite Co.,
40th & Linden Streets
Oakland, California
Snow & Galgiani
533 Second Street
San Francisco, Calif.
Barker Fdry. Sply. Co.
120 S. Linden Avenue
S. San Francisco, Calif.

COLORADO
Mine & Smelter Supply
Co.
1422 17th Street
Denver, Colorado

ILLINOIS
Hill & Griffith Co.
4606 West 16 Street
Chicago 50, Ill.
Foremost Fdry. Supply
Co.
Chicago, Ill.
Mail Address
2400 S. 43 Street
Milwaukee, Wisc.
The S. Obermayer Co.,
2564 West 18 Street
Chicago 8, Ill.

INDIANA
The John M. Glass Co.
18 S. New Jersey
Indianapolis, Ind.
Hill & Griffith Co.
4000 E. 16 Street
Indianapolis 18, Ind.
Frederic B. Stevens,
Inc.
36 Shelby
Indianapolis, Ind.

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Canfield Foundry
Supply & Equipment
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Kansas City, Kansas

MASSACHUSETTS
Springfield Facing Co.
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MICHIGAN
A. T. Wagner Co.
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1800 Eighteenth
Detroit 16, Michigan
Wolverine Fdry. Sup.
Co.
3211 Bellevue Ave.
Detroit, Mich.
E. J. Woodson Co.
7415 S. Aubin
Detroit, Michigan

MISSOURI
M. A. Bell Co.
217 Lombard St.
St. Louis 2, Missouri
St. Louis Coke &
Foundry Supply Co.
1525 Sublette Ave.
St. Louis 10, Missouri

NEW JERSEY
Springfield Facing Co.
S. 2nd & Bergen St.
Harrison, N. J.

The FANNER MANUFACTURING Co.
Brookside Park
Cleveland, Ohio
Circle No. 242, Page 7-8

OREGON
LeGrand Ind. Supply
Co.
155 W. Arthur
Portland, Oregon

NEW YORK
The E. J. Woodson
Co.
146 Chandler
Buffalo, N. Y.
Frederic B. Stevens,
Inc.
93 Stone Street
Buffalo 12, N. Y.
Lovejoy Patent Spec.
Co.
Hoosick Falls, N. Y.
M. L. Doelman
79 Morgan Parkway
Williamsville, N. Y.

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Co.
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Cleveland 5, Ohio
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J. J. McCoy
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Whatever you cast...

Comes out better with **KOPPERS Premium Foundry Coke**

You'll have fewer rejects—far better quality castings when you switch to Koppers Premium Foundry Coke. Car after car, Koppers delivers a superior coke that's absolutely uniform in size, strength, structure and chemical analysis. Because of the higher carbon content in Koppers Premium Foundry Coke, the foundryman can maintain a higher temperature range which increases the cleanliness of the iron. This in turn, helps reduce fuel consumption—means lower operating costs all around. Next time order Koppers Premium Foundry Coke. Available anywhere in the U.S. or Canada in sizes to meet your needs. Koppers Company, Inc., Pittsburgh, Pa.



WE CHECK EACH DAY'S RUN to make certain you get foundry coke of the exact size and chemistry that is most efficient for the job. Analyses are available to your foundry on request.

Clean ultrasonic equipment . . . with new water-wash detergent and degreasing solvent specially compounded for ultrasonic cleaning equipment. Use circle number below to request bulletin. *Narda Ultrasonics Corp.*

Circle No. 178, Page 7-8

Buffing machinery . . . and polishing equipment presented in 4-p brochure, information yours when you circle number below. *Divine Brothers Co.*

Circle No. 179, Page 7-8

Gear drives . . . quadruple reduction drive, discussed in brochure. Horsepower ratings and specifications included. *Link-Belt Co.*

Circle No. 180, Page 7-8

Polishing brushes . . . of straight-line and helical-face construction illustrated with specifications in brochure. *Osborn Mfg. Co.*

Circle No. 181, Page 7-8

Hardness tester . . . various models for testing of aluminum and its alloys, copper, brass and other metals shown in brochure. *Webster Instrument, Inc.*

Circle No. 182, Page 7-8

Testing Screen . . . for sizing test samples of crushed stone, sand, slag, coke, and similar materials. Claimed to make up to seven separations simultaneously. *Soiltest Inc.*

Circle No. 183, Page 7-8

Die-casting alloys . . . presented in 8-p brochure including specifications and and zinc alloys. *Apex Smelting Co.*

Circle No. 184, Page 7-8

Cutting and grinding . . . trends and advances reviewed in new periodical which includes metalcasting information. *Simonds Worden White Co.*

Circle No. 185, Page 7-8

Quick release valve . . . for air control systems said to possess unusual sensitivity, venting pressures as small as 6 psi for more precise control. Circle No. below for data sheet. *Industrial Products Div., Westinghouse Air Brake Co.*

Circle No. 186, Page 7-8

Pressure testing . . . equipment and methods for sealing openings are outlined in 16-p catalog illustrating application to many types of openings. *Mechanical Products Corp.*

Circle No. 187, Page 7-8

Hard surfacing electrode . . . catalog offers data on more than 25 different electrodes and wires. *Welding Products Div., A. O. Smith Corp.*

Circle No. 188, Page 7-8

Pump connectors . . . nipples and noise absorbers shown with specifications on data sheet; request it by using number below. *Cobra Metal Hose Co.*

Circle No. 189, Page 7-8

Western bentonite . . . brochure presents advantages and explains differences between various types and grades. *Archer-Daniels-Midland Co. Federal Foundry Supply Div.*

Circle No. 190, Page 7-8

Circle No. 263, Page 7-8

Chemical milling . . . of castings is subject of brochure discussing recent advances in this process. *United States Chemical Milling Corp.*

Circle No. 191, Page 7-8

Forming dies . . . and other castings reportedly made for the automotive industry from alloyed gray iron are shown in brochure. *Advance Foundry Co.*

Circle No. 192, Page 7-8

Ventilation . . . fans and blowers bulletin shows applications and contains chart showing size and capacity. *Chicago Blower Corp.*

Circle No. 193, Page 7-8

Non-ferrous scrap metals . . . standard classification circular contains standards effective Aug. 1, 1958. *National Association of Waste Material Dealers, Inc.*

Circle No. 194, Page 7-8

Lower freight costs . . . is subject of 6-p report pointing out how you may reduce freight costs. *Midwest Freight Traffic Service Bureau.*

Circle No. 195, Page 7-8

Colored steel . . . in building construction portrayed in brochure. Color coatings of blue, green, bronze, rose, gray and white offered. *Stran-Steel Corp.*

Circle No. 196, Page 7-8

Beryllium copper . . . casting alloys depicted in brochure containing properties and information on processing of castings. *Beryllium Corp.*

Circle No. 197, Page 7-8

Plastic refractory . . . reported to be slag resistant. Protects ladles, spouts and cupolas. Request bulletin. *North American Refractories Co.*

Circle No. 198, Page 7-8

Cut-off wheels . . . listed in brochure containing specifications and features. *Peninsular Grinding Wheel Div.*

Circle No. 199, Page 7-8

Sand conditioning . . . unit said to facilitate scrap control—explained in brochure. *Royer Foundry & Machine Co.*

Circle No. 200, Page 7-8

Epoxy resins . . . applications and advantages presented in 8-p brochure. *Marbette Corp.*

Circle No. 201, Page 7-8

Shell molding . . . with forsterite grains described in 4-p brochure. *Harbison-Walker Refractories Co.*

Circle No. 202, Page 7-8

Die-casting alloys . . . their properties and industrial applications, are described in 32-p booklet. *American Smelting & Refining Co.*

Circle No. 203, Page 7-8

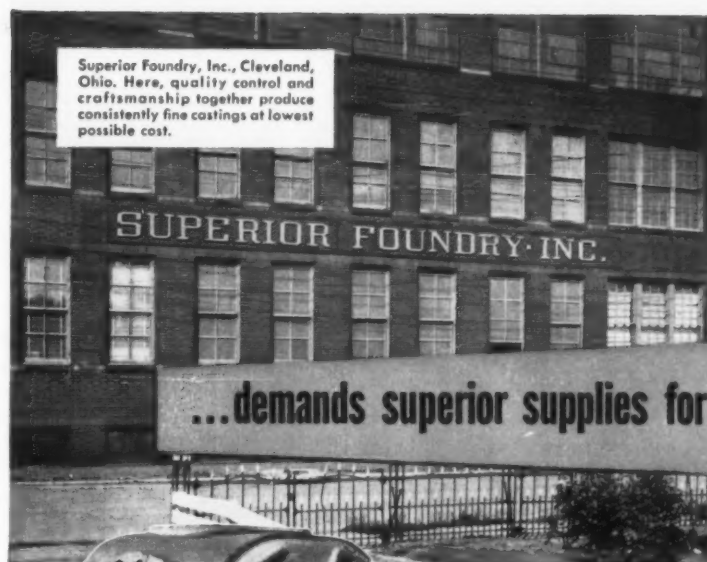
Nickel bronze castings . . . melting and molding practice described in 4-p booklet. *International Nickel Co.*

Circle No. 204, Page 7-8

Water-cooled cupolas . . . presented in 4-p brochure. *Modern Equipment Co.*

Circle No. 205, Page 7-8

Continued on page 73



Superior Foundry, Inc., Cleveland, Ohio. Here, quality control and craftsmanship together produce consistently fine castings at lowest possible cost.



Complex castings ranging from 10 to 2200 lbs. are produced by Superior Foundry for numerous automotive, air-conditioning, and road building equipment manufacturers. Illustrated is an intricate compressor housing with critical internal dimensions and thin wall sections. It is typical of the Tiffany-like work performed by Superior Foundry, and emphasizes the need for uniform sand mixes.

Quality is the watchword up and down the line at Superior Foundry, Inc., Cleveland, Ohio, where a system of statistical quality control supplements individual skill and ingenuity—intercepts errors and puts them in check before they can multiply. Control is centered in three primary areas: (1) Metallurgy (2) Pattern Design (3) Sand Mixture.

Accurate control of the molding sands is maintained through the use of statistics. In other words, Superior Foundry has learned to duplicate successful sand mixes and apply them scientifically on repeat, or similar, orders.

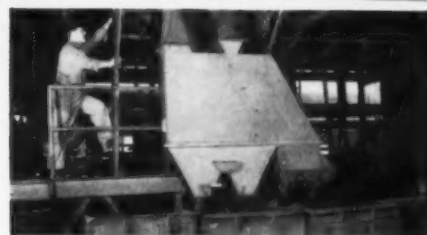
Important to casting quality is the uniformity of the ingredients introduced into the facing and system sands. That is why uniform ADM-FEDERAL CROWN HILL SEA COAL and GREEN BOND BENTONITE have been specified for years by Superior Foundry.

Call your ADM-FEDERAL Representative today; ask for a demonstration of CROWN HILL SEA COAL and GREEN BOND BENTONITE in your foundry.



Mullers supply molding machines with seven basic facing sand mixes. CROWN HILL SEA COAL and GREEN BOND BENTONITE are introduced in varying amounts to correspond to the specific mold requirements.

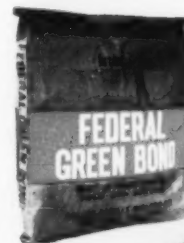
...demands superior supplies for accurate control of sands



Sands are reconditioned by removing fines in this sand scrubber. Reclaimed sand is reused in the facing sands. This scrubbed sand is also used with perfect results in the core room where LINOIL is employed as a binder and ADM-FEDERAL REFRACTORY CORE WASHES are used.



CROWN HILL SEA COAL is carefully graded into six distinct grinds. It is uniformly high in volatile combustibles and extremely low in sulphur and ash content. Through rigid control of these characteristics CROWN HILL SEA COAL offers the ultimate in dependability, performance, and uniformity.



GREEN BOND BENTONITE, the purest of Western bentonites, provides the high degree of quality and consistency needed in shops like SUPERIOR where statistical quality control is employed. This material is unmatched in its natural bonding power with maximum permeability.

Archer Daniels Midland company

FEDERAL FOUNDRY SUPPLY DIVISION

2191 West 110th Street • Cleveland 2, Ohio

Manufacturers of—

ADM-FEDERAL
Core Washes

ADM-FEDERAL
Plumbagos

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Sand Stabilizers

CROWN HILL
Sea Coal

GREEN BOND
Bentonite

LINOIL
Core Oils

ADCOSIL
CO₂ Binders

LIN-O-SET
Air-Setting Binders

SAVE!...MAKE UP A CAR OR TRUCKLOAD OF ARCHER QUALITY PRODUCTS



Circle No. 230, Page 7-8

November 1958 • 71

BOY! was my face RED!

I'd always used crucible furnaces
in my shop, until a few years ago.
Then, I switched.

But not for long!
I'm back to
crucible furnaces again.
Why? two counts:
Cost, and flexibility.

Know what I found? My crucible cost,
per pound of metal melted is **no higher**
today than it was in 1940! Sure,
crucibles cost a little more today,
but I get more heats. I checked my old records,
and per pound of metal melted my **crucible costs are the same!** And another thing —
flexibility. On a lot of these non-crucible furnaces, try and
change from one metal to another without contamination!
But in my crucible furnaces, I just change from one crucible to
another, fast, simple, and trouble free!

From now on, its crucible melting for me!

These manufacturers
are ready to assist you
with melting and
pouring problems,
foundry layouts and
crucible furnace
servicing.

ELECTRO REFRACTORIES & ABRASIVES COMPANY
LAVA CRUCIBLE-REFRACTORIES COMPANY
ROSS-TACONY CRUCIBLE CO.
VESUVIUS CRUCIBLE COMPANY
AMERICAN REFRACTORIES & CRUCIBLE CORPORATION
JOSEPH DIXON CRUCIBLE CO.

Crucible Manufacturers' Association

CRUCIBLE MANUFACTURERS ASSN.
11 West 42nd Street, N. Y. 36, N. Y.

- ☐ Send "Crucible Charlie" Brochure #3 "Furnace Maintenance".
☐ Send "Crucible Charlie" Brochure #4 "Proper Fitting Hardware".

NAME.....

POSITION.....

COMPANY.....

ADDRESS.....

CITY.....

STATE.....

Circle No. 265, Page 7-8

New Oregon Museum Features Metalcasting

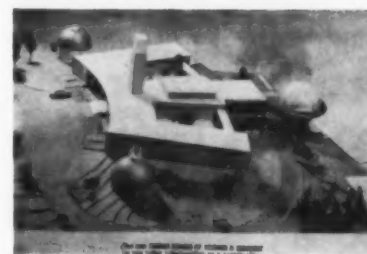
—Bill Walkins
Electric Steel Foundry Co.
Portland, Ore.

■ Thanks to the Oregon Chapter of the American Foundrymen's Society and Electric Steel Foundry Company (ESCO), the foundry industry is well represented at the new Oregon Museum of Science and Industry. Elaborate displays have been provided by these two organizations.

The AFS exhibit uses color transparencies to portray the step by step manufacture of a casting. ESCO's display also employs transparencies depicting quality control and non-destructive testing of castings. A scale model of ESCO's 24 million volt betatron provides animation by using a series of twinkling lights to "x-ray" a casting. Both exhibits are set in motion by spectators who are invited to push the buttons.

The museum, located on four acres of ground adjacent to the new Portland Zoo and Arboretum, was financed and built through combined efforts of labor, management, business firms, professional people and school children. Contributions made possible construction of the \$600,000 project for less than one-third that amount.

Building materials were contributed by business firms and most of the installations were made by labor contributed by Oregon's labor unions. On two separate occasions, Oregon Chapter, AFS, donated one dollar per member to the Museum's building fund. A sizeable boost was provided by a \$50,000 cash gift to the museum by members of the Swigert family in honor of the late Charles F. Swigert,



ESCO's founder. A wing of the museum has been named the "Charles F. Swigert Hall of Science and Industry."

The museum, although not quite finished, has already been opened to the public. When completed, it will feature the only planetarium in the Pacific Northwest; an observatory with a 12-1/2 in. lens and a camera obscura; a Foucault pendulum in the center tower; a gigantic relief map of the Columbia basin showing the natural resources, water power and industrial development; a natural science wing; industrial displays from local and national concerns and a 400 seat auditorium for films, lectures and study groups.

Construction of the museum was recognized by the President of the United States as one of the greatest and most heartwarming cooperative efforts in the state's hundred year history. "Your museum," said Mr. Eisenhower, "will be a focal point for training and inspiration. The need for Americans skilled in the sciences has never been greater. Congratulations for the energy and imagination shown in this cooperative enterprise."

Photos by Paul Fillinger—ESCO



for the asking

Continued from page 71

Machining manual . . . 22-pp, contains guide for machine feeds and speed, includes quantity-weight slide rule calculator, and other basic information. *Kaiser Aluminum & Chemical Sales, Inc.*
Circle No. 206, Page 7-8

Iron and steel scrap . . . fact sheet in folder form answers many questions about scrap. *Institute of Scrap Iron & Steel Inc., Committee on Bankability.*
Circle No. 207, Page 7-8

High frequency equipment . . . alternators and converters presented in 120-p brochure. *Louis Allis Co.*
Circle No. 208, Page 7-8

Small parts . . . bulletin includes zinc-alloy die castings made to specifications; also standard items. Use circle number below. *Gries Reproducer Corp.*
Circle No. 209, Page 7-8

Combustion process . . . for temperature uniformity in heat-treating furnaces is subject of pamphlet. *Fort Pitt Bridge Works.*
Circle No. 210, Page 7-8

Emergency roof repairing . . . kit which reportedly stops leaks even during driving rain is presented in brochure. *Monroe Co.*
Circle No. 211, Page 7-8

Concrete cutting lance . . . illustrated in brochure. *Linde Co.*
Circle No. 212, Page 7-8

Thermal expansion . . . of refractories and how to allow for it is explained in 8-p brochure. *Refractories Div., Carborundum Co.*
Circle No. 213, Page 7-8

Resistance thermometers . . . for temperatures up to 1000 F described in new 36-p catalog. *Leeds & Northrup Co.*
Circle No. 214, Page 7-8

Graphite electrodes . . . for electric furnaces listed and illustrated in explanatory folder. *Electrode Div., Great Lakes Carbon Corp.*
Circle No. 215, Page 7-8

Casting alloys . . . development and standardization in the United States is subject of 16-p booklet. Use circle number below. *WaiMet Alloys Co.*
Circle No. 216, Page 7-8

Iron and steel castings . . . specifications offered in chart form for castings produced by this company. *Belle City Malleable Iron Co.*
Circle No. 217, Page 7-8

Boom truck . . . which reportedly positions work loads to 1/1000-in. accuracy described and illustrated in brochure. *Vanguard Engineering Co.*
Circle No. 218, Page 7-8

Automatic release . . . of heat, smoke and explosive force up through roof of plant fully explained with photographs and specifications. *Swartwout Co.*
Circle No. 219, Page 7-8

modern castings

FOUNDRY FACTS NOTEBOOK

Tentative Method For Determination of Shock-Load Expansion Test

Introduction

1. The shock-load expansion test measured at 1800 F under a 1 psi load offers a simple and single high temperature test which measures the mold wall fracture losses such as scabs, buckles and rat tails of iron molding sands.

Definition

2. Shock-load expansion by this test is expansion expressed in inches per inch of specimen length that a sand develops when suddenly heated at a specified elevated furnace temperature under a specified load at a given green hardness.

Equipment Specifications

3. A dilatometer consisting of a radiant-type furnace capable of operating up to 2500 F, a means for measuring the load, a means of measuring the temperature within the furnace and controlling the temperature at a predetermined temperature.

Preparation of the Test Specimen

4. The test specimen is to be the AFS Tentative Standard 1-1/8 in. x 2 in. formed in a ground and hardened steel specimen tube.

5. The sand is to be passed through a 6-mesh screen and sealed in an air-tight container. The test specimens are to be rammed within six hours of the time that foundry molds are made, providing laboratory test data is to be correlated with casting quality.

6. The test specimens are to be rammed with the AFS Tentative Standard 1-1/8 in. x 2 in. sand rammer, mounted on a concrete or steel pillar or a rammer sub-base. The specimens are to be rammed to the same hardness to which the sand will be or was rammed in the foundry. When the sand rammer is equipped with an adjustable ramming device, trial and error

FOUNDRY FACTS NOTEBOOK is designed to bring you practical down-to-earth information about a variety of basic foundry operations. As the name implies, this paper is prepared for easy removal and insertion into a notebook for handy future reference.—Editor

specimens are rammed until the adjustable ramming device is set to correct height to produce the desired green hardness.

Where the sand rammer does not have adjustable ramming device, one can obtain adjustable weight drop distances by bolting 1/2 in. washers together. Place the assembled washers under rammer weight and suddenly pull washers out to cause weight to fall. The hardness of the test specimen is measured by stripping the test specimen so that the top of the specimen is flush with the top of specimen tube. Press hardness tester against the top of the specimen.

Test Procedure

7. With furnace and refractory posts in test position, hold at selected temperature for one hour before starting test. Thermocouple for measuring the temperature of the sand specimen should be located at the horizontal centerline of the specimen, not over 3/4 in. from the outside diameter of specimen.

8. Ram the test specimen and then place a 1-1/8 in. diameter by 1/2 in. high refractory disk with convex face on top of the specimen. Next, set specimen on a flat refractory disk of same dimensions.

9. Immediately place the specimen with the disks in the furnace. Cause both refractory posts to make firm contact with the specimen and refractory disks. This is accomplished by applying a 1 psi load. Record dial indicator reading at start, or if deformation recorder is used to

measure the length of the test specimen, rotate recorder drum to indicate pointer position at start. Time for this operation is not to exceed 5 seconds.

10. Immediately start the stopwatch and maintain a 1 psi load on the test specimen.

Record the dial indicator reading every 15 seconds up to time that constant readings are obtained. Maximum time—5 minutes.

When deformation recorder is used the recorder should be equipped with a timer that records time. If not, mark time with pencil dots every 15 seconds.

The average of two such tests is to be used.

Application of Shock-Load Expansion

11. The shock-load expansion test finds excellent correlation with the magnitude of mold wall fracture losses that are due to expansion, such as scabs, buckles and rat tails for iron molding sands. For such use, the shock-load expansion test is made under the following conditions: furnace temperature, 1800 F; specimen load, 1 psi and green hardness as used in foundry. The shock-load expansion reading taken at 23 seconds, tolerance $\pm 1/2$ second correlates with the magnitude of the mold wall fracture tendency of the sand.

The Committee's findings showed that shock-load expansion values greater than 0.003 inches per inch indicate sands that have tendencies towards scabbing, buckling and rat tailing. The greater the shock-load

Tentative Method For Determination of Shock-Load Expansion Test

expansion value, the greater the magnitude of such losses.

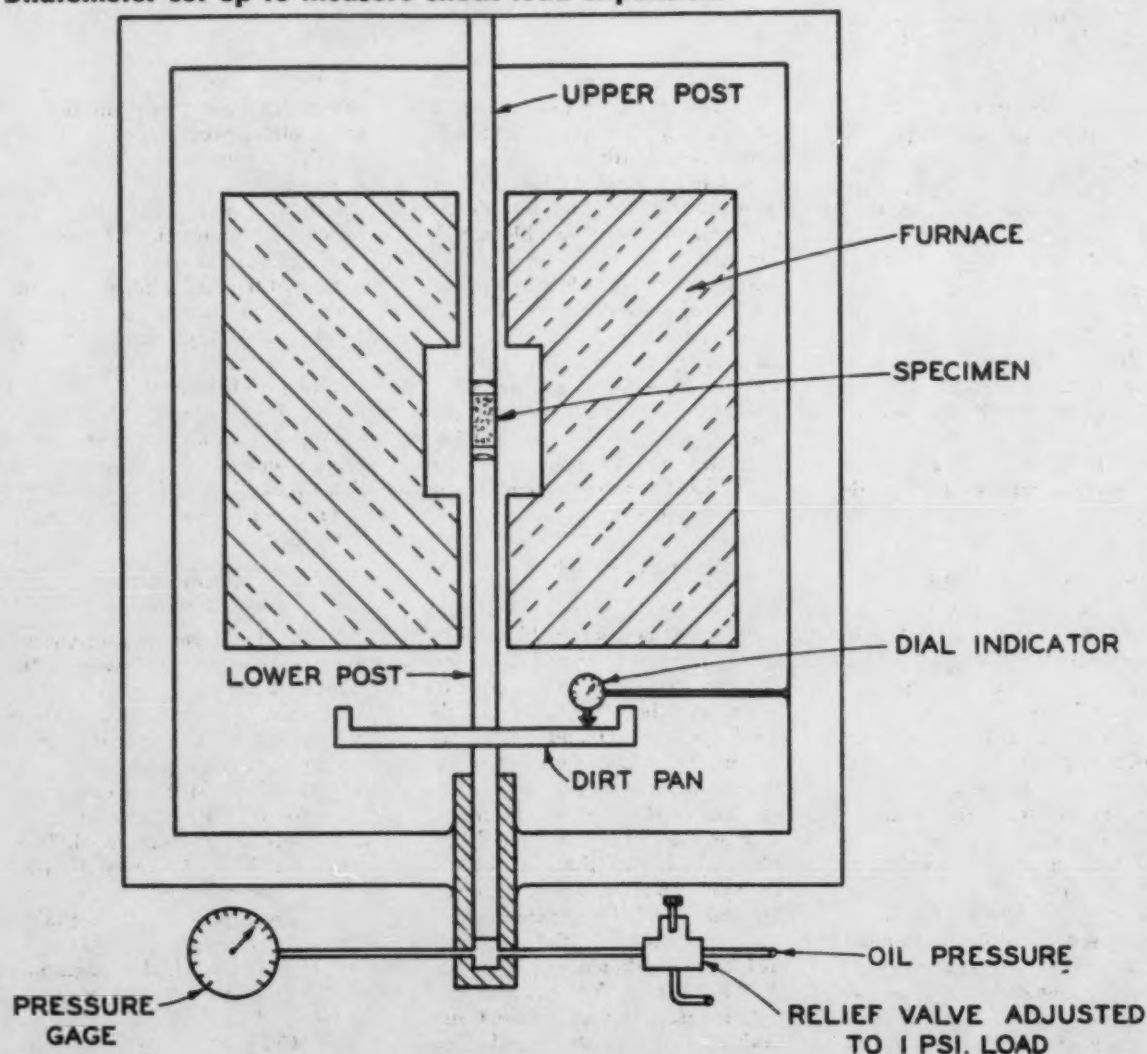
Committee members are:

L. E. Taylor, *Chairman*
K. S. Brooker, *Vice-Chairman*
C. E. Morrison, *Vice-Chairman*
W. A. Spindler, *Secretary*
E. C. Halligan, *Statistician*
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R. L. Doelman
J. A. Gitzner
R. L. Gollmar
R. A. Green
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W. A. Hambley
Allan Johnson
Burdette Jones
D. J. Jones
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John Lemon
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Victor Rowell
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E. C. Zirzow
E. C. Zuppann

Dilatometer set up to measure shock load expansion.



**SHOCK EXPANSION UNDER 1 PSI. LOAD
TEST SET-UP**

Board of directors . . . and how they help small firms is discussed in brochure. *Small Business Administration.*
Circle No. 220, Page 7-8

Selling facts . . . of product publicity discussed in monthly publication available when you circle number below. *Jordan & Van Deusen Co.*
Circle No. 221, Page 7-8

CO₂ process . . . handbook illustrates equipment and describes process, 46 pp. *Carver Foundry Products Co.*
Circle No. 222, Page 7-8

Conversion factor . . . wall-chart reference table for engineers and executives to speed up location of factors used daily. *Precision Equipment Co.*
Circle No. 223, Page 7-8

Temperature conversion . . . chart, wallet-size, available with easy-to-read tables of Fahrenheit and Centigrade temperature equivalents. *Moeller Instrument Co.*
Circle No. 224, Page 7-8

Microscopic photography . . . data book of the elementary photomicrographic technique available in a revised edition. *Eastman Kodak Co.*
Circle No. 225, Page 7-8

Inoculants . . . for cast and ductile iron described in booklets which use pictures, graphs and tables to show advantages. *Electro Metallurgical Co., Div. Union Carbide Corp.*
Circle No. 281, Page 7-8

Birth of gray iron castings . . . related in technical, colorful, 20-p book. *Pittsburgh Coke & Chemical Co.*
Circle No. 282, Page 7-8

Radiography . . . in modern industry handbook, 140 pp, well illustrated, for engineer or student. *X-Ray Div., Eastman Kodak Co.*
Circle No. 283, Page 7-8

Wood and metal pattern . . . development and production fully described and illustrated in 12-p booklet. *Motor Patterns Co.*
Circle No. 284, Page 7-8

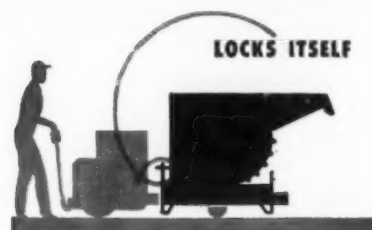
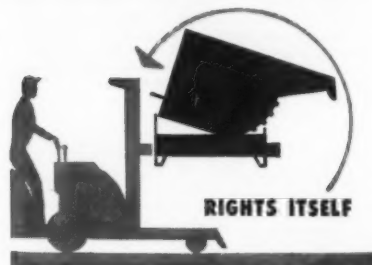
Core processes . . . reprint, six pp, discusses four major core making processes with a comparison of advantages and disadvantages of each. *Archer-Daniels-Midland Co.*
Circle No. 285, Page 7-8

Casting alloy . . . high strength, ductile, outlined as to melting, casting and heat treating. Specifications and properties listed. *Kaiser Aluminum & Chemical Sales, Inc.*
Circle No. 286, Page 7-8

Alloying ingredients . . . for production of alloyed steels and irons described and illustrated in booklet. *Alloy Metal Products, Inc.*
Circle No. 287, Page 7-8

Blue print files . . . storage units illustrated in brochure. *Momar Industries.*
Circle No. 288, Page 7-8

Mold jackets . . . of cast iron or aluminum described in folder. *Adams Co.*
Circle No. 289, Page 7-8



Cuts handling time ...and costs...in half

Here's the fastest, lowest cost method ever devised for handling all kinds of bulk materials... hot or cold... wet or dry... such as:

Punch Press Parts... Cinders
Hot Forging or Castings... Scrap Metal
Pickles... Soybean Meal

A Roura Hopper fits any standard lift truck... attached or detached in seconds... can't slip off. One man does the entire job. Picks up loaded Hopper with lift truck... transports it to destination... flips the latch... and the Hopper automatically dumps its load, rights itself, locks itself. Cuts costs 50% or more.

They're sturdily made of heavy $\frac{3}{16}$ " steel plate with continuous arc-welded joints. Five sizes from $\frac{1}{2}$ to 2 yards capacity. Fitted with live skids or a choice of wheels. Standard models available for immediate shipment from stock. For special applications they can be made of stainless steel or galvanized.

ROURA Self-Dumping HOPPER

WANT MORE FACTS?

We'll give you full details... without obligation... if you'll attach this coupon to your letterhead... sign your name... and mail to...

ROURA IRON WORKS, INC.
1414 Woodland Ave., Detroit 11, Michigan

Circle No. 252, Page 7-8

Hoists and cranes... and components detailed in 64-p brochure. Use circle number below. *Consolidated Crane & Engineering Corp.*

Circle No. 290, Page 7-8

High vacuum valves... for vacuum furnaces are described with specifications in folder. *NRC Equipment Corp.*

Circle No. 291, Page 7-8

Freight cart... with replaceable deck subject of 5-p folder. *Lewis-Shepard Products, Inc.*

Circle No. 292, Page 7-8

Index... to 1957 MODERN CASTINGS with cross references by subject, title and author available. *American Foundrymen's Society.*

Circle No. 296, Page 7-8

Mixer muller... operation fully outlined on diagram sheet covering 3-stage unit. *Pekay Machine & Engineering Co.*

Circle No. 297, Page 7-8

Magnetic equipment... of all types detailed in bulletin. *Stearns Magnetic Products, Div. Indiana Steel Products Co.*

Circle No. 298, Page 7-8

Core blowing... and mold blowing machines described in 32-p booklet listing features and applications. *Beardsley & Piper, Div. Pettibone Mulliken Corp.*

Circle No. 299, Page 7-8

Magnetic lifts... shown with features detailed on diagrams in brochure. *Ohio Electric Mfg. Co.*

Circle No. 300, Page 7-8

All-purpose truck... which is said to convert from fork-lift to bucket loader in three min, without tools, is presented in illustrated bulletin. *Beardsley & Piper, Div. Pettibone Mulliken Corp.*

Circle No. 301, Page 7-8

training films

The following list of motion pictures and film strips will prove useful in educating your personnel to better perform their jobs. Circle the appropriate number on the Reader Service card (page 7-8) for complete information regarding these films. Items indicate whether films are available free of charge, by rental or by purchase only.

Tape recordings... of technical talks on many facets of the metalcastings industry are available from AFS. Circle number below for complete listing. *American Foundrymen's Society.*

Circle No. 293, Page 7-8

Metalcasting technology... experts have written many books and manuals which are available through AFS. A complete, classified list is yours when you use the circle number below. *American Foundrymen's Society.*

Circle No. 294, Page 7-8

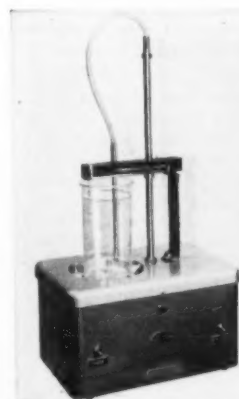
Training courses... pertinent to every type of metalcasting work are offered by the AFS Training and Research Institute. For free brochure covering all courses offered, circle number below on Reader Service card, page 7-8. *American Foundrymen's Society.*

Circle No. 295, Page 7-8

ENJOY THE BETTER THINGS OF LIFE

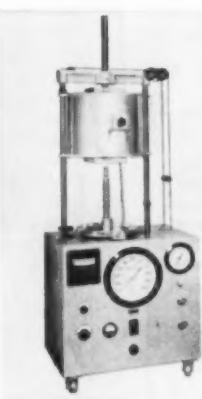


Why overwork yourself? Dietert-Detroit Sand Control Units can help you **PRODUCE BETTER CASTINGS AT LOWER COSTS IN LESS TIME.**



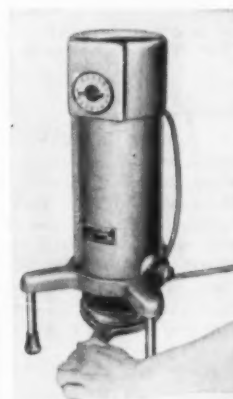
AUTOCLAY... No. 513

Saves operator's time in running A.F.S. clay substance test. Better castings and easier molding result from sands with controlled clay content. To obtain better casting finish, improve sand grain distribution, control fineness.



THERMOLAB... No. 785

For clean castings, free of defects. Test and control the high temperature properties of your molding materials with the Dietert-Detroit Thermolab. Reduce or eliminate scabs, cuts, etc.



MOISTURE TELLER... No. 276

Control moisture content in your molding sands and you will control the greatest variable causing defects in any foundry. The No. 276 takes but a few minutes to check moisture content.



RAGONE... No. 4210

Measure fluidity of ferrous and non-ferrous metals in seconds. Take the guess-work out of pouring requirements—know when your metal will flow properly to fill the mold.



MOLD HARDNESS TESTER... No. 473

Molds too soft? Rough surface can result. Molds rammed too hard? You may get rat-tailed or buckled castings. Be sure your molds are properly rammed, use the No. 473 Hardness Tester.



MOTOR DRIVE... No. 401

Eliminate the human variable of hand loading... equip your hand-operated sand strength machine with a No. 401 Motor Drive.

**DIETERT
DETROIT**

HARRY W. DIETERT CO.
9330 Roselawn
Detroit 4 Michigan

HARRY W. DIETERT COMPANY

Gentlemen: Rush me data on the following:

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| <input type="checkbox"/> Autoclay No. 513 | <input type="checkbox"/> Ragone No. 4210 |
| <input type="checkbox"/> Thermolab No. 785 | <input type="checkbox"/> Mold Hardness Tester No. 473 |
| <input type="checkbox"/> Moisture Teller No. 276 | <input type="checkbox"/> Motor Drive No. 401 |

Name _____
Company _____
Address _____
City _____ State _____

Circle No. 276, Page 7-8

classified advertising

For Sale, Help Wanted, Personals, Engineering Service, etc., set solid . . 25c per word, 30 words (\$7.50) minimum, prepaid.

Positions Wanted . . 10c per word, 30 words (\$3.00) minimum, prepaid. Box number, care of **Modern Castings**, counts as 10 additional words.

Display Classified . . Based on per-column width, per inch . . 1-time, \$18.00; 6-time, \$16.50 per insertion; 12-time, \$15.00 per insertion; prepaid.

Help Wanted

STEEL FOUNDRY MELTER—METALLURGIST—Experienced in electric steel basic practice. Position would include direction and supervision of Melt Department and Laboratory. Forward resumé of education and experience including salary requirement and availability. Box E-39, MODERN CASTINGS, Golf and Wolf Roads, Des Plaines, Ill.

CHIEF METALLURGIST

Well-established company in Michigan offers challenging position of Chief Metallurgist with its Steel Castings Division. Productive capacity is 1500 tons per month of steel castings for diversified application in heavy durable goods field. Applicant must be Graduate Metallurgist capable of assuming full responsibilities of metallurgical program and development projects within one year. Box E-48, MODERN CASTINGS, Golf and Wolf Roads, Des Plaines, Ill.

Working Foreman: Small, modern, iron job-shop wants journeyman molder to maintain sand control and supervise molding. West Coast. Send full particulars to Box E-51, MODERN CASTINGS, Golf and Wolf Roads, Des Plaines, Ill.

CORE DEPARTMENT FOREMAN

For well-known, progressive foundry in Up-State New York producing steel, gray iron and non-ferrous castings. Must be capable of supervising 12 men for maximum efficiency and have complete knowledge of rigging equipment for blowing cores and making shell cores. Must be capable of reading blue prints and estimating core production. Must also be well versed in the production of oil sand as well as COs cores. Excellent opportunity for right man. Write giving full details of personal background, past experience and salary expected. Box E-50, MODERN CASTINGS, Golf and Wolf Roads, Des Plaines, Ill.

FOUNDRY Design Engineer

Large manufacturer in Western Illinois—with a number of gray, nodular and malleable iron and aluminum foundries in the Middle West—has excellent opportunity for the **RIGHT** man. He must be experienced in the **DESIGN** of mechanized foundry equipment, sand processing systems, etc. and be able to assume responsibility for development of major installations. Attractive salary, liberal pension, insurance and other benefits. Give detailed resumé of experience, age, education, salary requirements, date available and a recent picture in first letter.

Box E-53 MODERN CASTINGS

Golf and Wolf Roads
Des Plaines, Ill.

SALES REPRESENTATIVE to call on Iron Foundries in Ohio. Must have iron foundry experience. Sales background not essential. Salary and incentive plan commensurate with ability. Box E-41, MODERN CASTINGS, Golf and Wolf Roads, Des Plaines, Ill.

LEADING FOUNDRY SUPPLY COMPANY, selling both supplies and equipment, require the services of an energetic sales representative to cover the states of Virginia, North Carolina and South Carolina. Looking for man with foundry experience and sales ability. Good opportunity for the right man. Box E-52, MODERN CASTINGS, Golf and Wolf Roads, Des Plaines, Ill.

Positions Wanted

Graduate of a four-year foundry course with a leading Midwest earth-moving manufacturer covering every phase of the foundry desires a position in sales or trouble shooting. All told eight years foundry experience. Will relocate anywhere for a good opportunity. Presently employed in the layout department. Age 28, married, with two children. Box E-49, MODERN CASTINGS, Golf and Wolf Roads, Des Plaines, Ill.

Engineering Services

FOUNDRY CONSULTANT—Cupola melting, core and mold production, sand control system—for improved operations, scrap reduction with fast results. Call or write **CHARLES B. SCHOFIELD**, 1912 No. Ames, Saginaw, Mich. Phone Pleasant 2-2359.

NEW SERVICE

MODERN CASTINGS announces a new service available to all members of the American Foundrymen's Society. Any member seeking employment in the metalcastings business may place one classified ad of 40 words in the "Positions Wanted" column **FREE OF CHARGE**.

Inquiries will be kept confidential if requested. Ads may be repeated in following issues at regular classified rates. Send ads to **MODERN CASTINGS**, Classified Advertising Dept., Golf and Wolf Rds, Des Plaines, Ill.

Wanted to Buy

BACK VOLUMES — Wanted to buy for cash of foundrymen, **TRANSACTIONS** American Foundrymen's Society and other scientific technical Journals, A. S. **ASHLEY** 27 E. 21, N. Y. 10, N. Y.

WANTED! BOUND VOLUMES OF TRANSACTIONS OF AFS. Arrangements to sell bound volumes of **TRANSACTIONS** of AFS, intact and in good condition, may be made through AFS Headquarters. Those who have no further use for any volumes of **TRANSACTIONS** on their bookshelves are requested to communicate with the **Book Department**, American Foundrymen's Society, Golf and Wolf Roads, Des Plaines, Illinois.

For Sale

NEW 60# DETROIT ROCKING FURNACE, fully equipped. Used only 10 hours—Actual cost \$5,500 plus. Make offer.

Mr. Richard T. James
James Industries, Inc.
Box 486, Paoli, Pa.
Paoli 3737

SHELL MOLDING MACHINES (USED)—**SHALCO** HO-5 2-sta. 18x24, \$1985; MC-4, \$695; O-4 1-sta. 14x18, \$395; Shalloway CO-1, 2-sta. 14x18, \$395, \$595, \$995; PF-6-Fuser, \$905; PF-5 Fusers, \$505; also VF-5 Fusers (imported diaphragm); \$595; SM-1 Sand-Resin Blenders, \$365; misc. shell equipment. **SHALLOWAY CORPORATION**, So. Fourth St., Connellsville, Pa. (Market 8-8800).

MORE FACTS on all products, literature, and services shown in the advertisements and listed in **Products & Processes** and in **For the Asking** can be obtained by using the handy Reader Service cards, pages 7-8.

EMPIRE*

"THAT GOOD"

FOUNDRY COKE

DeBARDELEBEN COAL CORPORATION
2201 First Ave., North Birmingham 3, Ala.
Phone Alpine 1-9135

*Reg. U.S. Pat. Off.

Circle No. 269, Page 7-8

foundry trade news

Continued from page 67

by Little Giant Inc. Grede Foundries, Inc. . . . Milwaukee, has purchased Cutler-Hammer foundry that was closed recently. Grede plans to use the equipment in its other foundries.

Clark Equipment Co. . . . Buchanan, Mich., has established first facility used for dealing in fork lift trucks on a national scale. Called Used Equipment Center, the facility will buy, sell or trade fork trucks of any type or make. According to John Mitchell, general manager of the New York branch, center will operate along lines of a used automobile lot, except that it will trade on a national basis. Outlets for used trucks will include fleet operations which utilize trucks as standby equipment to replace machines undergoing repair.

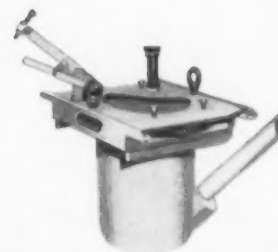
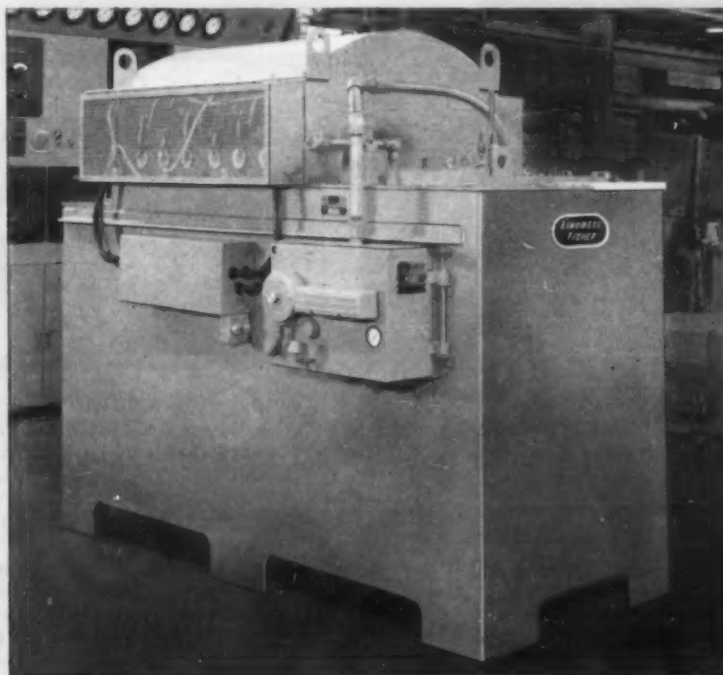
Tyler Pipe and Foundry Co. . . . Tyler, Texas, has installed a Swedish process which makes possible production of 10-ft soil pipe. The conventional length soil pipe is 5-ft. The process was obtained by M. J. Henley, newly elected vice-president and general manager for the firm, while visiting the Scandinavian countries recently to study foundry operations. "It will be the first intricately cast soil pipe in the United States," Henley said. The company expects the longer pipe to increase its sales and to cut installation costs for the plumbing industry.

During the past five years, the plant has installed a completely mechanized sandblasting system, a water-cooled cupola and equipment for permanent molding pipe fittings.

Dura-Bond Bearing Co. . . . Palo Alto, Calif., manufacturer of nationally distributed automotive-engine parts will add shell-mold castings to their line. Francis R. Burke, Jr. announced his company has acquired Sandshell Corp., Santa Clara, Calif. Sandshell will continue to make shell-mold castings of brass, bronze, aluminum alloys, and special purpose compositions. According to Burke, "Acquisition of the Sandshell Corp. is the first step in a long range program for company diversification."

Detroit Gray Iron and Steel Foundries, Inc. . . . Detroit, is the new name for the 42-year old Detroit Gray Iron Foundry Co., reflecting products of the parent company and its subsidiaries. The Detroit plant now specializes in production of steel

There's a Lindberg Aluminum Holding Furnace Just Right for Your Specific Job



This is Little Joe, the Lindberg Autoladle, the first practical automatic aluminum ladling unit yet devised. An exclusive feature of Lindberg electric resistance holding furnaces, "Little Joe" makes automatic casting of aluminum fast, dependable and economical.

Electric resistance holding furnaces for aluminum have been a specialty of Lindberg engineers for years. These furnaces have proved themselves in superior operation in varied industries, the world over. Now Lindberg offers a complete line, newly-designed, available in capacities of 1,000, 1,500, 2,000, and 3,500 lbs. If your production processes require proper holding of aluminum you can depend on Lindberg to provide just the right equipment for the most efficient and practical answer to your problems.

Lindberg makes a wide variety of melting and holding furnaces for aluminum, brass, bronze, tin, zinc, lead and other non-ferrous metals.

These include aluminum induction, nose-pouring crucibles, electric resistance holding furnaces and big reverbs. For foundry, permanent mold or die-casting plant, independent or captive, there are Lindberg melting and holding furnaces to fit every need.

If your problem in this field needs a special solution Lindberg's design staff can find it. Just get in touch with the Lindberg plant or the Lindberg Field Representative in your locality, or write Lindberg-Fisher Division, Lindberg Engineering Company, 2440 West Hubbard Street, Chicago 12, Illinois. Los Angeles Plant: 11937 South Regentview Avenue, at Downey, California.



LINDBERG

heat for industry

**A COMPLETE LINE OF
ROLLER CONVEYERS
engineered and standardized by**

MATHEWS



Roller conveyor pouring lines served by two roller conveyor transfer cars in modern mechanized foundry.

The Mathews line of roller conveyor is complete, with rollers ranging from 1- $\frac{1}{2}$ " to 6- $\frac{1}{2}$ " in diameter, and with capacities from 60 lbs. to 13,000 lbs. High quality ball bearings are used throughout.

Accessories such as turntables, hinges and switches are available from stock.

A full line of couplings and supports makes the installation of Mathews Roller Conveyor lines convenient and easy.

*For latest information write for
CATALOG 156*



MATHEWS CONVEYER COMPANY
GENERAL OFFICES ELLWOOD CITY, PENNSYLVANIA
PACIFIC COAST DIV. MATHEWS CONVEYER COMPANY WEST COAST,
SAN CARLOS, CALIFORNIA
CANADIAN DIVISION . MATHEWS CONVEYER COMPANY, LTD., PORT HOPE,
ONTARIO.

MATHEWS
(Member Foundry Equipment Manufacturers Association)

Circle No. 272, Page 7-8

78 • modern castings

castings up to 12 tons. Its Lansing Foundry Division produces both gray iron and ductile iron castings up to 35 tons. Valley Steel Castings Division, Bay City, specializes in steel castings up to 20 tons. Oakland Foundry Division, Rochester, Mich., produces small cast-iron parts.

Canadian Steel Foundries Ltd. . . . Montreal, established a record in Canadian metals industry with the pouring of a 330,000 lb steel casting—largest ever produced in that country. The huge castings is the bottom



platen for a 6000-ton wheel forging press being constructed by Canadian Vickers Ltd. for Canadian Steel Wheel Ltd. The mold for the casting took a month to make. Steel experts estimated it will take 12 days to cool the huge mass of molten metal. The record casting is the third to be produced for the wheel press; the first two weighed 200,000 and 290,000 lb respectively. G. L. McMillin, president paid tribute to the skill of veteran steel men for success of the project.

A. P. Green Fire Brick Co. . . . Mexico, Mo., announced through W. S. Lowe, president, that through the exchange of common stock Green has acquired Stevens Fire Brick Co., Macon, Ga. Stevens is a small, well-established company producing Georgia-type of super, high and medium duty fire brick. This continues the policy of rounding out a complete line of refractory products to meet demands of industry in all sections of the country. Robert McIntosh, of Mexico office, has taken over as manager of Stevens Company operations.

C. I. T. Corp. . . . a subsidiary of C.I.T. Financial Corp., New York, president T. E. Lenihan states: "Installment financing is no longer simply a credit device but, rather, a prime selling method that has gained wide favor in fields as diverse as packaging, road building and materials handling." Sellers of heavy machinery and equipment used in dozens of fields found that the installment plans they are able to offer are a major

**N
A
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L** **70
B**

**THE ONE MODERN
HIGH ALUMINA
PLASTIC
REFRACTORY**

for ALL your requirements!

- Electric Furnace Roofs or Center Sections
- Crucible Furnaces
- Runners
- Spouts
- Ladles (all types)

JOINTLESS CONSTRUCTION

EASE OF INSTALLATION

LONG-LASTING SERVICE

Furnished in

- 100 lb. Easy-to-Handle Cartons
- Conveniently Sized 2" Slices
- Air or Hand Ram Consistency
- Polyethylene Envelopes for Safe Storage

NORTH AMERICAN REFRACTORIES CO.
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Los Angeles, Calif.

NORTH AMERICAN REFRACTORIES, LTD.
Hamilton, Ontario



Circle No. 271, Page 7-8

sales factor today. C.I.T., the nation's largest industrial financing firm has long-term financing plans working for manufacturers, distributors and dealers of machinery and equipment in more than 90 fields.

Otaco Limited of Orillia . . . Ontario, Canada, was awarded the U. S. Navy's Certificate of Merit for "outstanding contribution" to the Department of the Navy. Believed to be the first time a Canadian company has been so honored, the award recognized Otaco performance in supplying heavy-duty sled for Navy use in Little America. Presentation of the award was made in Orillia by Captain James Douglas, U.S.N.

The sleds, used in the rigorous 600-mile trek to a U. S. geophysical expedition near the South Pole, had to withstand the stresses of 20-ton loads carried over rough terrain at temperatures as low as 70 deg below zero. The problem was met by fabricating essential sled parts from ductile iron.

Shallway International Corp. . . . Palo Alto, Calif., president, J. B. Shallenberger and several of the company's California and Crawley, England, foundry engineers provided free interpreters to overseas visitors through the AFS Foundry Show. Visitors were invited to several receptions given for the Foundry Managers Orientation Tour sponsored by Shallway International. The tour included seven European foundry managers to whom the firm sent round-trip airline tickets from their home cities abroad to Cleveland. The managers were guests of the company while in the United States.

Electric Steel Foundry Co. . . . Portland, Ore., Ladish Co., Cudahy, Wis., and Hi-Vac Metals Div., Symington-Wayne Corp., Depew, N. Y., have been appointed distributors of Oregon Metallurgical titanium, zirconium, and other reactive metals, as announced by S. M. Shelton, executive vice-president and general manager. By the combined sales organizations of these companies, OREMET is provided with a nation-wide outlet for their products.

Dow Chemical Co. . . . Midland, Mich., Magnesium Technical Service and Development Group has established a field-office technical-service organization. Aim of the new program is to station technicians closer to magnesium users in fabrication, finishing, design foundry practice, forging and metallography. Until now all personnel have been based at company

NOW SAN-BLO IS BACKED BY B & P

All SAN-BLO machines are now manufactured, sold and serviced by Beardsley & Piper. To B&P, this addition completes by far the largest selection of machinery of any manufacturer to meet every core room need. For present and future San-Blo customers, this change means that the well-known San-Blo machines are now backed by the world's largest manufacturer of foundry machinery.

BACKED BY B&P ENGINEERING

B&P maintains by far the largest engineering department in the industry, and the facilities of this department will now be fully utilized in further development and improvement of San-Blo machines.

BACKED BY B&P EXPERIENCE

The B&P staff of core room specialists—men trained to handle coremaking, core sand preparation, and core handling problems—will be available to provide help to San-Blo customers. The services of these men assure the installation of the right machine for the right job, and the proper performance of that machine after its installation.

BACKED BY B&P MANUFACTURING

B&P manufacturing facilities, devoted exclusively to the manufacture of foundry machinery, will be utilized in producing future San-Blo units. Construction of San-Blos will be supervised by competent, experienced production men who have spent their lives in building foundry machinery.

BACKED BY B&P SERVICE

The B&P service organization has been augmented by the addition of San-Blo specialists and the entire staff has been trained to handle San-Blo installation, maintenance and repair. Every San-Blo customer is assured of continuing high caliber service provided on a prompt and reasonable basis. Service contracts are also available.

BACKED BY B&P's GUARANTEE

New San-Blo units manufactured by Beardsley & Piper, like all other B&P units, are fully backed by the guarantee and reputation for quality and performance of the world's largest manufacturer of foundry machinery. This guarantee is another extra provided with every new B&P San-Blo.

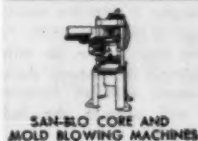
THE MODEL
40 PI LPP
SAN-BLO



SAN-BLO

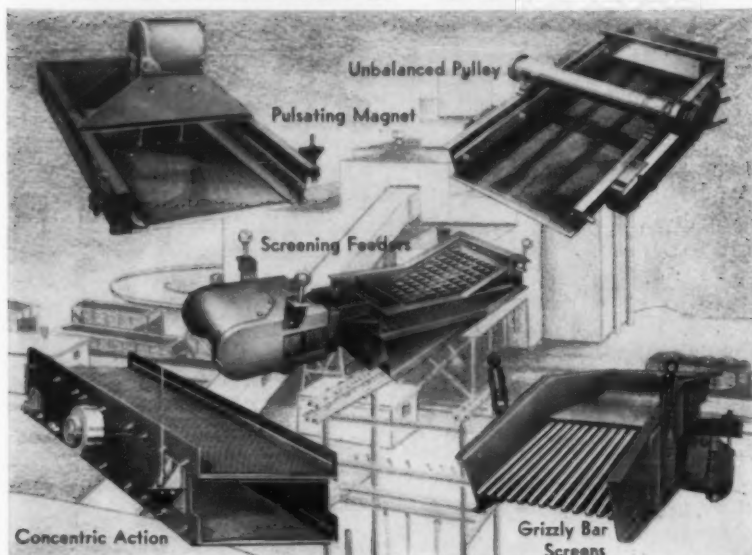
Beardsley & Piper
Div. Pettibone Mulliken Corp.
2424 N. Cicero Ave. • Chicago 39, Ill.

NOW ADDED TO THE B & P LINE . . .



SYNTRON

VIBRATING SCREENS



higher tonnage . . . at lower costs
fast, efficient scalping, separating and sizing

SYNTRON Vibrating Screens provide an efficient, economical solution to every screening problem—for scalping, separating and sizing—for coarse screening and feeding of basic materials—for particle size control in processing quality materials or in reclaiming waste materials.

SYNTRON builds five types of screens in a complete range of sizes and modifications. Electromagnetic or electromechanical drives—single, double or triple decks—combination screens and feeders—with grizzly bars—any requirement necessary for your particular application.

SYNTRON Vibrating Screens are engineered for high capacity output with low operating and maintenance costs. Ruggedly constructed of quality materials by experienced craftsmen for long, dependable, trouble-free service.

The experience of more than a third of a century are built into SYNTRON Vibrating Screens. This experience is yours without cost or obligation. Send complete details of your screening problem to our application engineers for recommendation.

Products of proven dependable Quality

Vibrators (bins, hoppers, chutes)	Rectifiers (Silicon and Selenium)
Vibratory Feeders	a-c to d-c Selenium Rectifier Units
Vibratory Screens	Electric Heating Panels
Shaker Conveyors	Electric Heating Elements
Vibratory Elevator Feeders	Sinuated Wires
Weigh Feeders	Shaft Seals
Packers and Jolters	Electric Hammers
Hopper Feeders	Concrete Vibrators
Lapping Machines	Paper Joggers

Our representatives will be glad to work with you in selecting the proper equipment for your operation.

Call your nearest Syntron representative.
Write for FREE catalog information.

SYNTRON COMPANY

545 Lexington Avenue

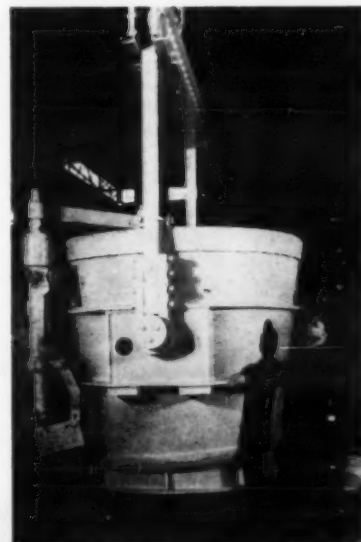
Homer City, Penna.

Circle No. 252, Page 7-8

headquarters in Midland. The home group will continue its broad program of technical data gathering and development work and will provide support services to the field men.

Pelton Steel Casting Co. . . . Milwaukee, is maintaining leadership with its new addition for non-destructive testing. In 1948 this type of testing was started with 300 milligrams of radium. After three years they changed to cobalt 60, an isotope produced by Atomic Energy Commission which produces a picture similar to an x-ray. Metalcasting x-rays reveal shrinkage defects and enables foundry to head and gate pattern to avoid these defects. New installation will have two cobalt 60 sources, one of 10 curies and one of 2 curies, many times stronger than present source (less than one-third a curie). By having more powerful sources, exposure time is greatly reduced and work can be done faster. With 10 curies time required is only 1/30th time needed for one-third of a curie.

Floor plan is designed with shielding to protect personnel in and around sources of such potency. Double concrete walls are filled with steel punchings and barium sulfate, total weight of which will exceed 70 tons.



Blaw-Knox Co., . . . Pittsburgh, Pa., designed and manufactured this 35-ton welded steel ladle which will be used in the new process for vacuum pouring steel ingots. The ladle will receive molten metal from a 200 to 250-ton open hearth and transfer it into the vacuum chamber, where ingot molds are filled. Primary purpose of the intermediate, so called pony ladle, is to maintain the vacuum during pouring. It is equipped with an Autopour mechanism which will operate the ladle stopper by remote control.

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product report . . .

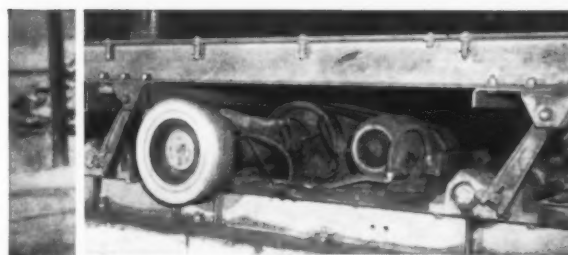
Over-size tote boxes double as storage bins and handling units for Kaiser Aluminum & Chemical Corp., Ravenswood, W. Va. The boxes are used as receptacles in finishing areas where scrap is generated. When filled, they are transported by fork-lift truck to a storage area where they are arranged side by side, forming a "portable" warehouse. Scrap-filled boxes are kept here until scheduled for baling and remelt.

Approximately 6.5x4.5x4 ft in size, the 8000-lb capacity boxes are designed to keep all alloys separated.

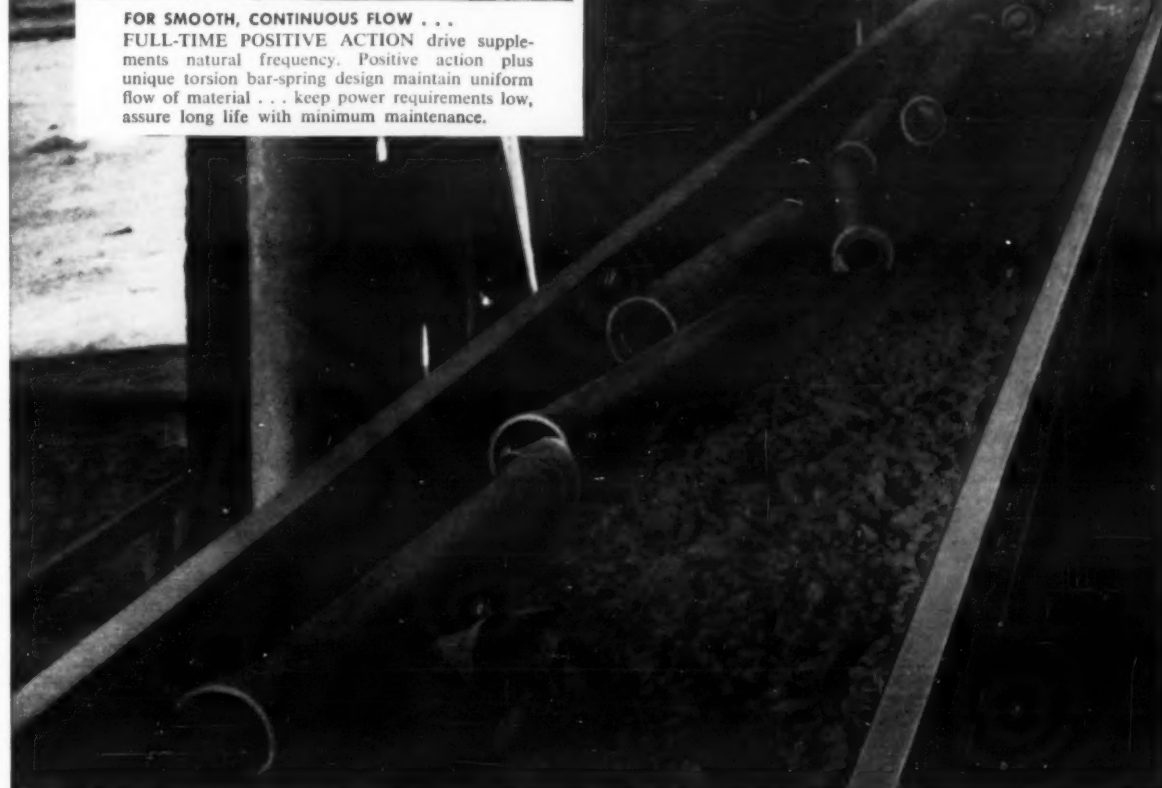


Each of the boxes is allocated for use with one type of scrap only. Berger Div., Republic Steel Corp., Cleveland, manufactured tote boxes which are designed for four-way entry by fork truck, also permits dumping by automatic tipping device at side of baling pit.

For Manufacturer's Information
Circle No. 306, Page 7-8



FOR SMOOTH, CONTINUOUS FLOW . . .
FULL-TIME POSITIVE ACTION drive supplements natural frequency. Positive action plus unique torsion bar-spring design maintain uniform flow of material . . . keep power requirements low, assure long life with minimum maintenance.



Handling "piping hot" castings with 83% less man-hours

**LINK-BELT oscillating conveyor
collects . . . conveys . . . cools
red-hot pipe at Western Foundry Co.**

Nothing less than a Link-Belt Torqmount oscillating conveyor could answer the requirements of Western Foundry Co., Tyler, Texas. Red-hot cast iron pipes had to be collected and conveyed from a line of automatic spinning machines to storage area. In addition, this foundry wanted a piece of equipment that would shake the sand

out of the pipe as well as separate it from the castings. Link-Belt oscillating conveyor with *full-time positive action* performs all these functions . . . refuses to dampen under heavy surge loading conditions. The 141 ft. long conveyor line handles over 1700 five-foot pipes per shift, cooling them en route to storage.

This installation has also brought about tremendous manpower savings. Fifteen of 18 men tied up by previous methods have been freed for more productive jobs elsewhere in the foundry.

For further information on how heavy-duty Torqmount can benefit your foundry, call your nearest Link-Belt office. Or write for Book 2444.

LINK-BELT

OSCILLATING CONVEYORS



LINK-BELT COMPANY: Executive Offices, Prudential Plaza, Chicago 1. To Serve Industry There Are Link-Belt Plants and Sales Offices in All Principal Cities. Export Office, New York 7; Australia, Marrickville (Sydney); Brazil, Sao Paulo; Canada, Scarborough (Toronto 13); South Africa, Springs. Representatives Throughout the World.

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THE GODDESS WHO DEFIES THE ELEMENTS

Cast with 6,500 pounds of Apex architectural aluminum, this 31 foot figure of *Ceres*, the grain goddess, stands high atop Chicago's Board of Trade Building—*beautiful and unimpaired after exposure through more than 20,000 days and nights since erection in 1930*. It will outlast the structure it tops.

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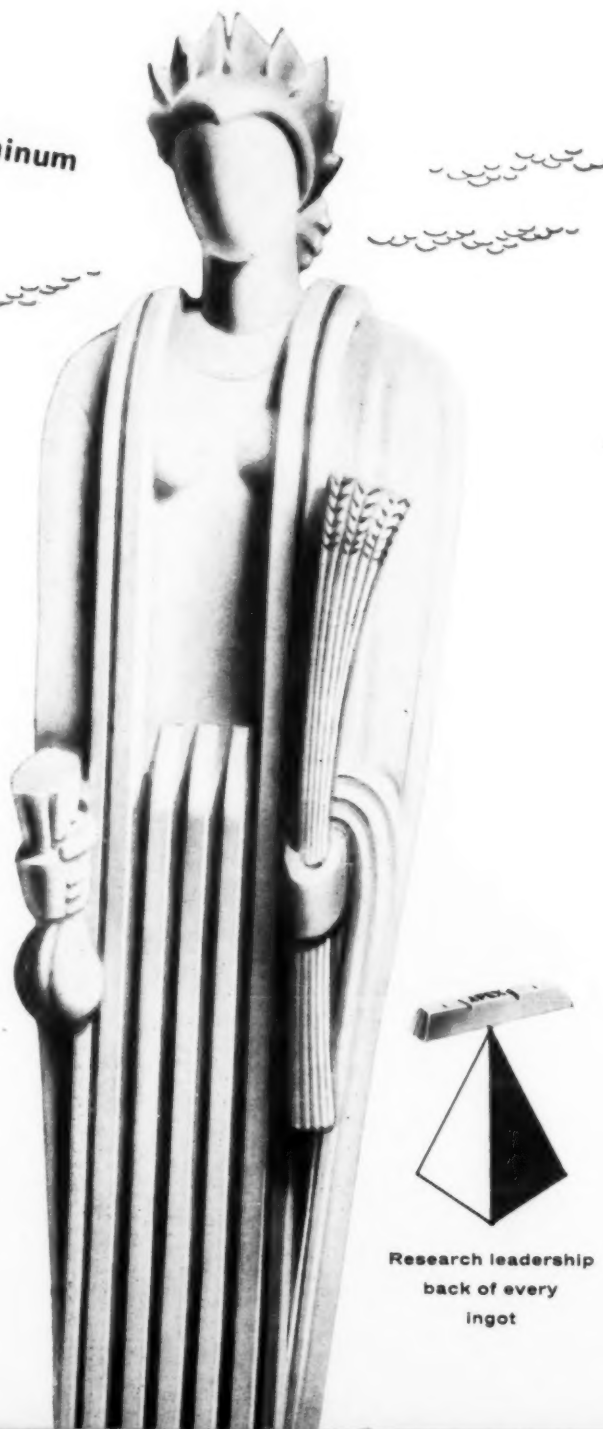
The aluminum alloy used for casting *Ceres* still remains in the greatly expanded line of Apex quality alloys. Our customers get the same assured results from its identical characteristics, castability, resistance to corrosion and oxidation. We produce it—and all other Apex alloys—under rigid electronic quality control that gives you *certified* accuracy to specifications.

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Call on Apex. There's long term dependability and scientific leadership back of *every* Apex alloy, whether it's aluminum, magnesium or zinc.

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